GENERAL AND REGIONAL

GEOGRAPHY FOR

INDIAN SCHOOL

VOL: II

1930

GENERAL AND REGIONAL GEOGRAPHY

Volume II

GENERAL AND REGIONAL GEOGRAPHY

FOR

INDIAN SCHOOLS

BY

E. T. DEAN B. A., M. Sc.
Professor of Geography, Forman Christian College, Lahore.

Volume II.

REGIONAL GEOGRAPHY OF EUROPE, NORTH AMERICA AND THE SOUTHERN CONTINENT'S.

LAHORE:
RAI SAHIB M. GULAB SINGH & SONS.
1930

Printed by Lala Shadi Ram Monga, at Lal Chand & Sons, 76, Lower Circular Road, Calcutta, and Published by L. Sohan Lal, trading as Messrs. Rai Sahib M. Gulab Singh & Sons, Educational Publishers, Lahore.

PREFACE

This book has been written with the object of providing a text-book for Matriculation and High School Examinations of Indian Universities. In recent years, more and more stress is being laid upon the human side of geography; an attempt has been made to link the great facts of climate and relief with vegetation and human activities.

Part I deals with the physical basis of geography. It is essential that before a pupil can fully understand the geography of any region, he must intelligently grasp the general principles which underlie and control its physical conditions. In Parts II and III, the World has been treated according to its natural regions. Part II includes the regional geography of the Northern Continents. The geography of Asia and more particularly India is selected for detailed treatment. Europe and North America have their due share. The Southern Continents, which present many interesting features for comparisons and contrasts are dealt with in Part III on a regional basis.

The book contains a large number of maps and diagrams, which are not intended to render useless the free use of atlases and wall maps but are suggestive illustrations of essential facts and principles. Questions given at the end of each section are selected and modified from various University Examinations.

In conclusion, I gratefully acknowledge the assistance of my wife in the preparation of maps and diagrams and of Mr. F. H. Vincent in the onerous task of proof-reading.

E. T. Dean.

CONTENTS

Part II.—Regional Geography of the Northern Continents—(*Continued.*)

Section II.—Europe.

Section III.—North America.

Part III.—Regional Geography of the Southern Continents

SECTION II.—EUROPE

CHAPTER XL

PHYSICAL FEATURES

General Remarks.—Europe is the smallest of the continents except Australia. Nearly the whole of Europe lies in the North Temperate Zone, the Arctic Circle cuts only a small fragment of Russia and Scandinavia. The area of Europe is about one-fifth that of Asia.

The commercial importance of Europe is due to its position with regard to the great sea routes. The sea-routes to the Atlantic, to Africa and to India, Australia and Japan pass along its shores.

Coasts.—The sea-coast of Europe is much more indented than that of any other continent. This is due to large inland seas. The chief indentations in the north-west are:—the North Sea, English Channel, Irish Sea and the Baltic Sea. *The North Sea* is shallow. It does not freeze on account of the influence of the Gulf Stream. Hence it is very rich in fish. The western coast of Scandinavia is highly indented. It has long deep **fiords,** which are valleys cut down by glaciers and river currents flowing in torrents.

The Baltic Sea is surrounded by the Great European Plain, but is frozen for about four months in the year. It is shallow and has no tides on account of its being surrounded by land. The amount of water received by the drainage of Sweden and Western Russia is greater than that lost by evaporation, hence a current flows into the North Sea. This makes the entrance very stormy. To avoid this, the **Kiel Canal** was built by the Germans to connect the Baltic and the North Seas.

The *Mediterranean Sea* separates Europe from Africa. It is fairly deep. It is connected with the *Black Sea*. The *Caspian Sea* is land-locked; its surface is 85 ft. below sea-level.

PRONUNCIATION OF GEOGRAPHICAL NAMES

In the pronunciation of geographical names of many countries difference of opinion sometimes arises. The word is broken up into syllables as spoken, with an accent after the syllable upon which emphasis is laid in speaking.

ä as in 'take';	â as in 'bad.'
ë as in 'seen';	ê as in 'left.'
ï as in 'rise';	î as in 'sin.'
ö as in 'so';	ô as in 'bog.'
ü as in 'tune';	û as in 'uncle.'

Adriatic.	âd-rë-ät′ îk.
Algeria.	âl-jër′ëâ.
Alsace.	âl-sâs′.
Bechuanaland.	bê-choo-ah′nah-lând
Buenos Aires	bwä-nös′ïrês.
Chile.	chîlî.
Coblenz.	kö′blênts.
Cologne.	cô-lön′.
Cordillera.	kor-dël-yä′rah.
Czechoslovakia.	chêk-ô-slö-vâk-ë′ah.
Delhi.	dêl′lë.
Ecuador.	êk′wâ-dor.
Euphrates.	yoo-frä′tëz.
Geyser.	ghï′zer.
Hawaii.	hah-wï-ë
Himalayas.	hîm-ah′lâ-yâs.
Moulmein.	möl′män.
Niger.	nï′jer.
Rio de Janeiro.	rë′oo dä zhah-nä′ë-roo.
Seine.	sän.
Vosges.	vözh.

Surface Features.—The surface of Europe may be divided as follows.—

1. *The Mountains of the North-West*, consisting mostly of metamorphic rocks. They are:—the Scandinavia Mountains, Highlands of Scotland, and the volcanic Island of Iceland.

2. *The Great Plain of Europe.*—There is a long stretch of lowland in the east from the Arctic Ocean to the Black Sea. The Plain stretches westwards and becomes narrow in Belgium and Holland and then turns towards the south-west ending at the Pyrenees.

3. *The Mountains of Central and Southern Europe.*—These mountains consist of young folded ranges enclosing plateaus and plains. They enclose the Meseta, *i.e.*, the Iberian Table-land, the Hungarian Basin and the Valley of the Po.

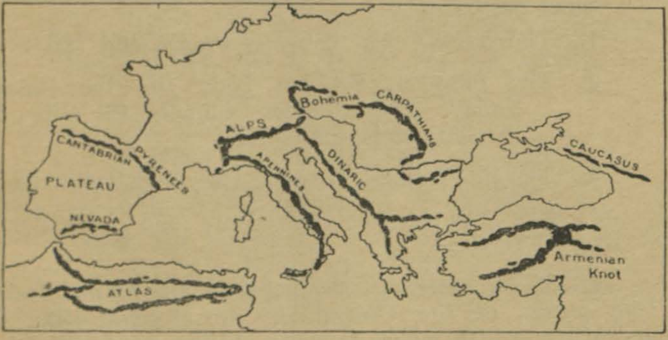


FIG. 55. The Mountains of Central and Southern Europe.

The **Alps** form a short curve in the north of Italy. Starting from this mountain knot, the ranges radiate in the following directions:—

(*i*) The western chain turns southwards through Italy as the *Apennines*, passing through Sicily to North Africa as the Atlas Range and then going northwards as the *Sierra Nevada*, in the south of Spain.

(*ii*) A branch goes west cut off by the sea and then continued into the *Pyrenees* and the *Cantabrian Mountains.*

(*iii*) There are three branches in the eastern extension:—

(*a*) The *Dinaric Mountains* running south-east and then dividing into two in the Balkan Peninsula.

(*b*) The *Carpathians* forming a loop and enclosing the Hungarian Plain. This branch crosses the Danube.

(*c*) A small range going north and enclosing the plateau of **Bohemia.**

The Passes of the Alps are important as routes for commerce and war. Roads and railways have been constructed on the lower passes.

The chief passes are:—

1. The Mont Cenis, between France and Italy.

2. The Simplon, between Italy and the Rhone Valley. The Simplon tunnel, 12¼ miles, is the longest in the world.

3. The St. Gothard, between Italy and Switzerland.

4. The Brenner, between Italy and Austria and Bavaria.

5. The Semmering, also between Austria and Italy.

The passes of the Central Alps are at equal distances round Milan, which makes this city an important centre for tourists.

Rivers.—The rivers are very important as they flow through industrial areas. The rivers of Europe may be divided into the following classes:—

(*i*) *The Rivers of the Eastern Plain.*—The *Volga* is the longest river in Europe. It rises in the Valdai Hills and flows into the inland lake—the Caspian Sea. A greater part of Russia lies in its basin; it is slow and

navigable but is not of much use. The *Dnieper* and the *Don* flow into the Black Sea.

(*ii*) *The Rivers flowing northwards.*—These are the *Loire* and the *Seine* in France; the *Rhine*, *Elbe* and the *Oder* in Germany; and the *Vistula* in Poland.

The Rhine rises in the Alps and flows through a fertile valley between the Vosges Mountains and the Black Forest and then through a deep gorge. It becomes a broad navigable stream after leaving the highlands.

The Elbe rises in the Bohemian Plateau, flows through Germany and falls into the North Sea. It is navigable, and Hamburg, the largest port of Germany, stands at its mouth. The Seine rises in the Langres Plateau and flows into the English Channel.

(*iii*) *The Rivers on the South of the Central Mountains.*—This group includes the Danube; the Rhone in France; the Po in Italy and the Douro, Tagus, Guadiana, and the Guadalquivir in the Iberian Peninsula, flowing into the Atlantic Ocean, and the Ebro into the Mediterranean Sea.

The Danube, the most important river of Europe, rises in the Black Forest Mountains and goes eastwards. It passes through a gorge, the flat plain of Hungary and flows southwards. It then receives its chief tributaries,—the Drave, Tista and the Save. It turns eastwards from the junction of the Save and passes through a gorge known as the Iron Gate, and empties itself in the Black Sea after forming a delta.

The Rhone rises in the Alps and passes through Lake Geneva and falls into the Mediterranean Sea.

(*iv*) *The Rivers of the British Isles and Scandinavia.*—The rivers of Scandinavia are useless for navigation because they are short and rapid. They are very useful for generating electricity as there are many waterfalls and rapids. The power is used in paper and match factories.

The rivers of the British Isles mostly flow eastwards as the mountains are on the western side. The rivers are

not navigable but their mouths are navigable and make excellent harbours. Their mouths face the great outlets of the Continent and hence they are of great commercial importance. The chief rivers are the:—

(*a*) Dee, Tay and Forth, east of Scotland;

(*b*) Tyne, Tees, Humber, and Thames, east of England;

(*c*) Clyde, west of Scotland;

(*d*) Mersey and Severn, west of England;

and (*e*) The Shann n in Ireland.

Lakes.—The lakes of Europe are divided into two classes:—

1. The **Alpine Lakes.**—These lakes are noted for their scenery. On the southern side are Maggiore, Como, and Garda. Geneva, on the north-west lies between the Alps and the Jura Mountains. Lakes Constance, Zurich, and Lucerne lie north of the Central Alps.

2. The **Baltic Lakes** lie round the Baltic Sea, formed in hollows grooved by ice. These are Ladoga, and Onega in Russia, and Vener, Vetter and Malar in Sweden.

Natural Regions.—The countries of Europe may be divided into the following regions physiographically.—

1. The North-Western Countries:—The British Isles, Sweden and Norway.

2. Countries of the Great European Plain:—

   (*a*) The Baltic States, Poland, and Denmark.

   (*b*) Germany, Holland, Belgium, and France.

3. The Central Highlands and the Danube lands:—Switzerland, Austria, Czechoslovakia, Yugoslavia, Rumania and Bulgaria.

4. The Mediterranean Lands:—The Iberian Peninsula, Italy, Albania, Greece and Turkey.
5. Eastern Plain:—Russia.

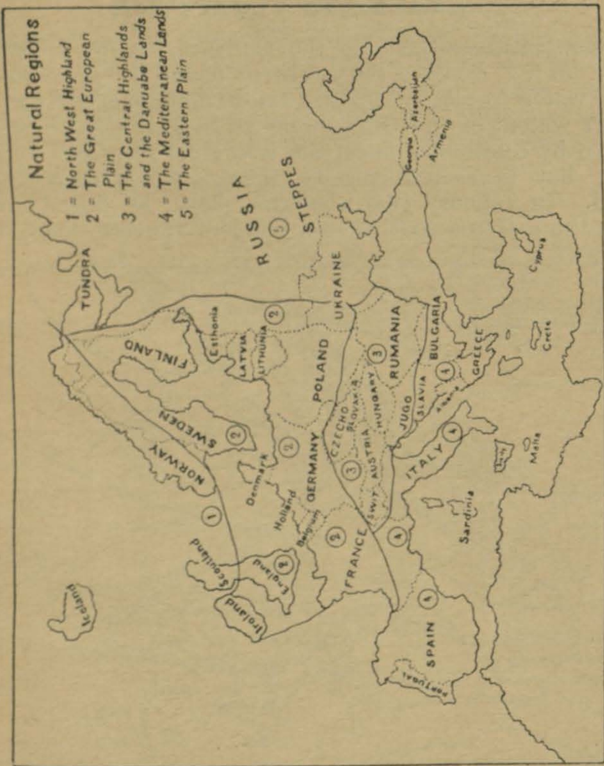


FIG. 56. Political Divisions and Natural Regions of Europe.

CHAPTER XLI

CLIMATE AND VEGETATION

Temperature.—Examine the isothermal map of Europe. [Fig. 57]. Observe the isotherm of 30°F., remembering that water freezes at 32°F. Its path is affected by the warm waters of the Gulf Stream. In July (the isotherms shown by continuous lines) the isotherms run from west to east, but in eastern regions there is a marked northerly trend. In January (the isotherms shown by dotted lines), only the extreme south has a temperature exceeding 50°F.

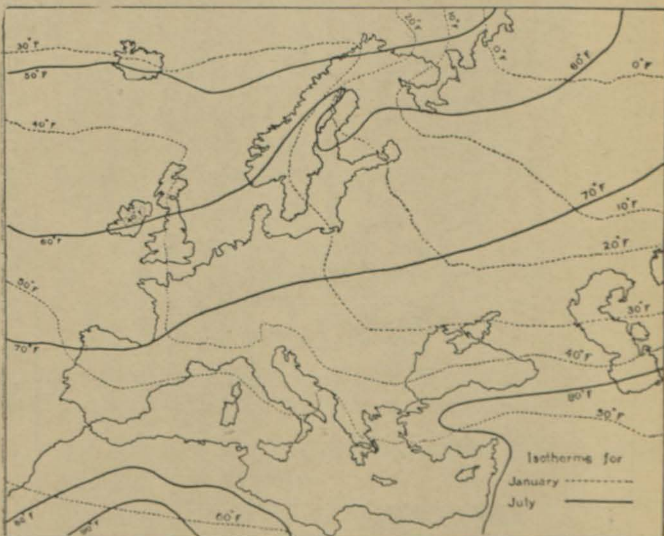


FIG. 57. Isothermal Map of Europe.

Hence we deduce.—

1. The warmest temperatures are experienced both in January and July in the Mediterranean Region.

2. The range of temperature along the western margins is very small.

3. The greatest range of temperature is found in the east and north-east.

Rainfall.—In *winter* nearly the whole of Europe is under the influence of the Westerly Winds, which are moisture-laden winds from the Atlantic Ocean. The rainfall decreases as we go eastwards. Most of the rain falls at places where the moisture-laden winds are checked by mountains.

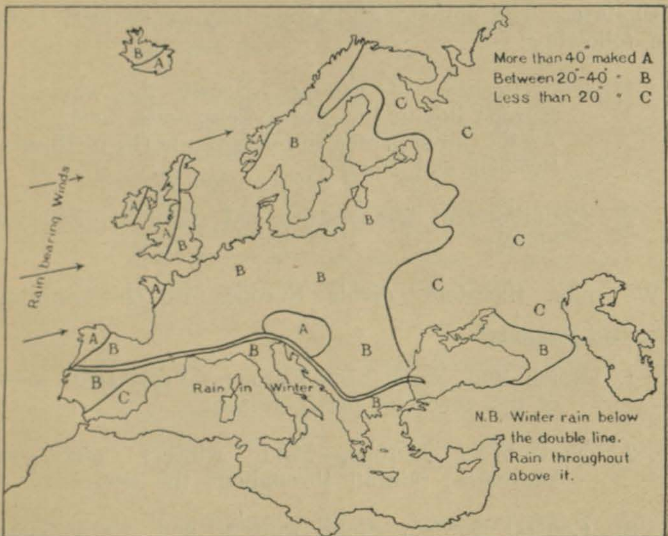


FIG. 58. Rainfall Map of Europe.

In *summer* the northern part only is under the influence of the South-West Anti-Trade Winds. There is high pressure at the Mediterranean region, wherefrom the North-East Trade Winds start. Russia also receives a little rain in spring especially on the Steppes.

Hence we deduce.—

1. Western margins of the British Isles and Scandinavia receive heavy rainfall throughout the year.

2. The Great European Plain receives moderate rainfall throughout the year.

3. The Eastern Plain receives very little rainfall in winter. There are slight showers in spring on the Steppes Lands.

4. The Mediterranean Region receives rain in winter only.

Climate.—The climate of Europe may be deduced from the following:—

1. The Position of Europe.—Nearly the whole of Europe lies in the North Temperate Zone. The Arctic Circle passes through the north of Russia, Sweden and Norway.
2. Conditions of temperature and rainfall discussed above.

We may, therefore, divide Europe into the following

Climatic Regions:—

1. North and North-East Europe.—Very cold most of the year and partly frozen.
2. North-West Europe.—Mild winters and cool summers; rainfall throughout the year.
3. Central Europe.—Cold winters and warm summers; moderate rainfall throughout the year.
4. Eastern Europe.—Very cold winters and warm summers; scanty rainfall. Light showers on the Steppes in spring.
5. The Mediterranean Region.—Warm wet winters and hot dry summers.

Natural Vegetation.—In most parts of Europe, the natural vegetation has been cleared and the land used for agricultural purposes. The following are the zones of vegetation :—

1. *The Arctic Region.*—The chief vegetation is the tundra which consists of mosses, lichens, small shrubs and berries. Large trees cannot grow.

2. *Cool Temperate Forests.*—These forests stretch as a broad belt right across Europe, south of tundra. The chief trees are pine and fir; their wood is used in the manufacture of paper pulp and matches. The cultivated crops are oats, barley, rye and flax.

3. *Warm Temperate Forests.*—This belt stretches from England over northern France, Germany and Central Russia. The trees are broad-leaved *e.g.*, oak, beech, ash and elm. Most of these forests have been cleared and the land used for agricultural purposes. In the western part the chief crops are potatoes, beet, barley and rye; in the eastern part wheat, hemp and flax are cultivated.

4. *The Steppe Lands* in South-Eastern Europe have vast stretches of grasslands. The wetter parts are used for the cultivation of wheat and other cereals; the chief occupation of the drier parts is the rearing of cattle.

5. *The Mediterranean Region* has evergreen trees *e.g.*, oaks, walnuts, olives, figs, vine, mulberry, oranges etc.

Peoples.—The inhabitants of Europe belong mostly to the Caucasic race. The following areas are very densely populated :—

1. The British Isles.

2. The Coastal Plain between the mouths of the Seine and the Rhine. This region has many metal and textile industries and has large transit trade.

3. Basins of the Rhine, the Elbe and the Po.

The regions of scanty population are Central Spain, Russia east of Volga and Northern Europe.

CHAPTER XLII

ECONOMIC PRODUCTS AND TRADE

The distribution of cereals and fruits has been discussed in the previous chapter. The most important of cultivated

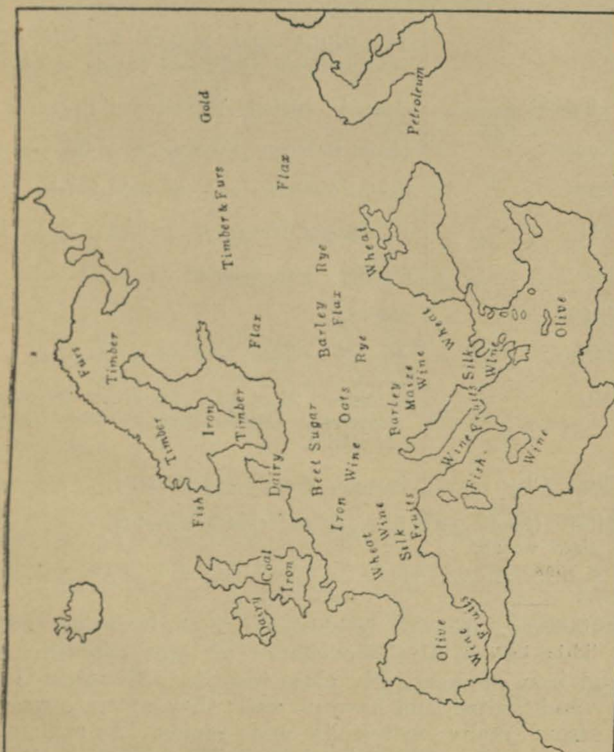


Fig 59. Economic Map of Europe.

crops are wheat, barley, rye, oats, maize, beet and flax; their distribution is shown in Fig. 59.

Minerals.—The following table gives the chief minerals of Europe and the localities in which they exist:—

Minerals.	Localities.
1. Coal ..	Great Britain; Franco-Belgian Coal-field; Coal-fields of Germany (Westphalia, Saar Valley, Silesia, Saxony) and Bohemia.
2. Iron ...	The British Isles, France, Belgium, Germany, Spain and South Russia.
3. Petroleum ...	Caucasia (Baku), Poland and Rumania.
4. Copper ...	Spain, Germany, Sweden, Yugo-Slavia.
5. Lead ..	Spain, Germany and the British Isles.
6. Gold ..	Russia and Hungary.
7. Zinc ...	Germany and Belgium.
8. Nickel ...	Norway.
9. Mercury ...	Almaden (Spain) and Idria (Austria).
10. Salt ...	Cheshire (England); Stassfurt (Saxony), Cardona, Castile (Spain) and Galicia (Austria).
11. China Clay ...	Saxony, France and England.
12. Silica (used for glass ware) ...	Belgium and Czecho-Slovakia.

Manufacture.—Europe is chiefly a manufacturing continent. This is due to the existence of large quantities of coal and iron comparatively close together. Countries like Norway and Switzerland have no coal; they generate water-power from many waterfalls and rapids. As explained before, Europe has fine natural harbours, has an indented coast and occupies a central position on the great trade routes. This explains why European countries are leading countries in the manufacture of various goods.

We can group the European countries and their products as follows:—

A. Europe, north of the mountain axis:—

British Isles ... ... Norway ... ... Scattered areas in France. Belgium ... ... Northern Germany ... Switzerland ... ... Northern Spain ...	Manufacturing Regions. (Manufacture depending upon coal, iron, waterpower and salt).
Agricultural France ... Southern Germany ... Hungary ... ... Rumania ... ... Parts of Russia ... Denmark	Mainly Agricultural and Pastoral Regions.

B. The Mediterranean and the Black Sea areas:—

(*i*) Fruits:—Oranges, lemons, almonds, figs, grapes, olives.

(*ii*) Trees:—Mulberry, oak, grass, vine and tobacco.

(*iii*) Cereals:—Wheat and barley.

The chief manufactures, therefore, are the manufacture of silk, wine and olive oil.

Means of Communication.—The inland transport of Europe is far superior to that of any other continent. Excellent roads are scattered all over. There are a number of canals, some of these connecting important rivers. The whole of Europe, except the Arctic Region, is covered with a net-work of railways. All the mountains except the Pyrenees have been crossed by railway lines.

The more important railway lines of Europe are as follows:—

1. The Railways of Great Britain.
2. The Indian Mail Route from Marseilles to London *via* Paris. The former route was *via* Brindisi, which has now been abandoned.

3. The Orient Express from Paris to Constantinople *via* Vienna, which may in time to come connect with the Baghdad Railway and then with Karachi.

4. The Northern Express from Paris to Moscow *via* Berlin, thus connecting with the Trans-Siberian Railway.

5. Paris to Madrid and Lisbon.

CHAPTER XLIII

THE BRITISH ISLES—I.—PHYSICAL

The British Isles consist of Great Britain and Ireland, and a number of small islands lying off the north-west coast of Europe. They are separated from Europe by the North Sea and the English Channel. The Dover Strait is only 21 miles wide.

Great Britain consists of England, Wales and Scotland. Ireland has been divided into Northern Ireland and the Irish Free State since 1920. The Irish Free State is an independent dominion; Northern Ireland forms part of the United Kingdom.

In ancient days, the Mediterranean region was the centre of civilisation and trade. Since the discovery of America, the geographical position of Great Britain has changed. It now lies in the centre of the land hemisphere.

Surface Features.—The surrounding seas are shallow and abound in fish. The British Isles once formed part of the mainland of Europe and they were separated by the subsidence of North-West Europe.

The plains of England are a continuation of the Great European Plain, and the highlands of Scotland merely a continuation of the Scandinavian Plateau. The fiords of Scotland are like those of Norway.

The *sea-coast* is very indented, hence there are excellent harbours.

The surface of the British Isles may be divided as follows.—

(*i*) *Scotland*:—

(*a*) The Northern Highlands—occupying the northern half of Scotland.

(*b*) The Midland Valley—just south of the Highlands.

(*c*) Southern Uplands with the Cheviot Hills, separating England from Scotland.

(*ii*) *England and Wales*:—

(*a*) The Pennine Chain, from the Cheviot Hills to the centre of England.

(*b*) The Cambrian Mountains, consisting of various groups in Wales.

(*c*) South-East Lowlands.

(*d*) Cornubia Peninsula in the south-west (Devon and Cornwall).

(*iii*) *Ireland*:—

(*a*) Central Lowland—saucer-shaped.
(*b*) Donegal Mountains in the north.
(*c*) Wicklow Mountains in the south-east.

Rivers.—The rivers of the British Isles are short. Most of them flow eastwards on account of the western sides being mountainous. The rivers of the British Isles have been briefly referred to on pages 232-3.

These rivers have important harbours at their mouths which are not ice-bound; most of these harbours face the important harbours of Europe. The following table gives the chief rivers and their harbours:—

	Rivers.	Harbours.
1. East of Scotland	Dee ... Tay ... Forth ...	Aberdeen. Dundee. Leith.
2. East of England	Tyne ... Wear ... Tees ... Humber ... Thames ...	Newcastle. Sunderland. Middlesborough. Hull. London.
3. West of Scotland	Clyde ...	Glasgow & Greennock.
4. West of England	Mersey ... Severn ..	Liverpool and Birkenhead. Bristol & Cardiff.
5. Ireland ...	Shannon ...	[Used for producing water-power at Ardna Crusha].

Climate.—The climate of the British Isles is much milder and more equable than countries situated in the same latitudes. This is due to the Gulf Stream Drift, which is a warm current and washes their west coast. The prevailing winds are the South-West Westerly Winds. The rainfall is heavier in the west than in the east on account of the mountain chains in the west. The eastern parts are exposed to the cold winds from the Continent and are therefore colder than the western parts.

The south-east of Britain has a greater anual range of temperature than any other part; the temperature in January is less than 38°F. and in July it exceeds 62°F.

Vegetation and Crops.—Long ago there were many forests, but most of the forests have now been cleared. The New Forest of Hampshire and the Forest of Dean in Gloucestershire are the only samples left. Timber is now imported from Scandinavia.

The chief cultivated crops are: wheat, barley and oats. Wheat is grown in Eastern England, barley in the English Midlands and the east of Scotland, and oats are grown everywhere.

Potatoes and flax are grown in the north of Ireland. Beet has recently been cultivated with success. There are many orchards and fruit-gardens producing beans, peas, raspberries, strawberries, gooseberries and currants etc.

Hops are grown for the making of beer.

Animals.—Cattle, sheep, pigs and horses are reared in large numbers. Sheep are least where cattle are numerous. Pigs are reared in Ireland for ham and bacon. Horses are used for ploughing, sport and military purposes, even though their number is decreasing on account of an increase in motor transport.

The British Isles import horses, meat, hides, dairy produce, wood etc. to supplement their home supplies.

CHAPTER XLIV

THE BRITISH ISLES—II.—ECONOMIC

Let us sum up the commercial advantages which the British Isles have over other countries:—

1. The climate in winter is much milder than what may be expected of countries in the same latitudes; hence the ports can be used all the year round.

2. The British Isles are situated in the centre of the land hemisphere and are within easy reach of the great markets of America, Asia and Australia.

3. The rugged coastline is a natural advantage; it is cut into by long estuaries; hence vessels can penetrate well inland and make transport easier.

4. The British Isles receive good rainfall, giving rise to a number of rivers and springs. The rivers are used for transport and motive power.

5. Certain industries are specially suited to the climate; *e.g.*, water is necessary in dyeing and brewing; cotton spinning requires a damp climate. This partly explains the cotton manufacture of the Lancashire towns.

6. The mountain systems have a number of gaps which have been caused by rivers. These gaps are used for purposes of communication.

7. With the advance of engineering, railways, roads, and canals have been constructed to facilitate inland transport.

8. Coal and iron are abundant.

Natural Resources.—The natural resources of the British Isles may be grouped as follows:—

(i) *Animal.*—Fishing is an old industry. The chief fishing grounds are:—

1. The Dogger Bank in the North Sea.
2. The seas round Iceland and the Faroe Islands.
3. The White Sea.
4. St. George's Channel.
5. South Coast of Ireland.
6. West Coast of Scotland.

With fishing are associated other industries *e.g.*, making of fishing boats, nets, barrels etc. Special fish trains are arranged for quick transport of fish.

(ii) *Vegetable.*—Only about 5 per cent. of the land is covered with forests. Hence wood is imported from Sweden, Norway, Burma, India and Java etc.

(iii) *Minerals.*—Coal and iron are fortunately found close together. **Coal-mining** is the most important industry of Great Britain.

The principal coal-fields in order of their output are:—

(*i*) The Yorkshire, Derby and Nottingham.

(*ii*) The Northumberland and Durham.

(*iii*) The South Wales.

Some of the deposits are at greater depths and hence their working becomes difficult; but new deposits at work-

able depths are found from time to time (*e.g.*, the recently opened mines near Dover).

Iron Ore is also found abundantly in Great Britain. The chief ore-producing centres in order of importance are:—

(*i*) East Midlands (*i.e.*, Northants, Leicester, Lincoln etc.).

(*ii*) Cleveland; Cumberland; Staffordshire.

(*iii*) Scotland (Central Plain).

More recently iron-ore is imported from Spain and Sweden.

Other Minerals are salt (in Cheshire, Worcestershire); tin (in Cornwall); china clay (in Cornwall) and small deposits of zinc, lead and copper.

Manufactures.—The manufactures of the British Isles may be divided into the following groups.

1. **Textiles.**—The textile industry includes the processes of spinning, weaving, dyeing and printing of all kinds of fibres—cotton, wool, silk, hemp, jute etc.

The *cotton industry* is confined to three areas:—

(*i*) Lancashire;

(*ii*) Scotland (Paisley and round Glasgow);

(*iii*) Nottingham and Leicester.

The reasons for the distribution are (*a*) cheap coal, (*b*) geographical position and (*c*) damp climate.

Linen is manufactured from the flax plant which is the principal crop in the north of Ireland; hence linen is manufactured in the Belfast district.

The *woollen industry* is carried out in Yorkshire; the chief towns manufacturing woollen goods are Leeds, Bradford and Halifax. The chief articles manufactured are blankets, tweeds, and serges.

The *silk industry* is widely distributed and is mainly carried on in Derbyshire, Cheshire and Staffordshire. It has recently suffered from foreign competition.

With the textile industry, there are certain associated industries *e.g.*, dyeing and bleaching at Perth; extraction of oil from the seeds of cotton and flax. With the extraction of oil, are connected soap-making and manufacture of paints and varnishes.

2. **Iron and Steel Industries.**—*Ship-building* is carried out in the Clyde area (the largest ship-building area in the world) and along the Tyne, Wear and the Tees. The chief places of manufacture are Glasgow, Newcastle, Sunderland, Liverpool and Belfast.

Machinery, tools, nibs, etc. are made at Birmingham; cutlery at Sheffield; motor cars at Coventry, Birmingham and Oxford; tin plate at Swansea and locomotives and rails at Doncaster, Kilmarnock and Darlington.

3. **Minor Industries.**—Pottery, earthenware etc. are made at Stoke-on-Trent and Burslem. Chemicals and glass-ware are manufactured in Cheshire and South Lancashire; leather goods at Northampton and Leeds; and paper in North Kent.

Jute Fabrics are manufactured at Dundee and Barnsley.

Means of Communication.—The chief means of communication may be grouped as follows:—

(*a*) Inland Waterways.—The rivers are navigable. The most important canals are:—1. The Manchester Ship Canal; 2. The Leeds-Liverpool Canal; 3. The Birmingham system of canals; and 4. The Caledonian Canal in Scotland.

(*b*) Railways.—There is a perfect net-work of railways in the British Isles. Main railway lines are in touch with the great ports. They serve great industrial areas. The chief railways are:—1. The Southern Railway; 2. The Great Western Railway; 3. The London, Midland and Scottish Railway and 4. The London and North-Eastern Railway.

Trade.—The following table gives the chief imports of the British Isles:—

Commodity.	Country of Origin.
A. *Foodstuffs* ...	
1. Wheat ...	The United States, India, Russia and Canada.
2. Meat ...	The United States, Australia, New Zealand and Argentina.
3 Tea ...	India and Ceylon.
4. Dairy Produce	New Zealand, Denmark and Holland.
5. Wine ...	France, Spain and Portugal.
6. Sugar ...	Guiana, West Indies, Java & Queensland.
B. *Raw materials* .	
1. Cotton	The United States, India and Egypt.
2. Wool . .	Australia, South Africa, New Zealand, Argentina and India.
3. Flax & Hemp	Russia and Sweden.
4. Jute .	India.
C. *Miscellaneous* ...	
1. Rubber . .	Brazil, West Africa, and the East Indies.
2. Silk .	China, Japan and France.
3. Minerals and Metals ...	Spain, Burma, Mexico and South Africa.
4. Petroleum ..	Russia and Burma.
5. Timber ...	Sweden, Burma and Java.

The chief exports are manufactured goods *e.g.*, textiles etc., iron goods, chemicals, locomotives, cars, and coal etc. Most of the exports are to Britain's foreign possessions or other countries in the tropics which supply her with raw materials enumerated in the table of imports.

Towns.—The towns of the British Isles are either important sea-ports or large industrial or railway centres. We will discuss them according to their geographical position.—

(a) *Plains of South-East England :*

LONDON is the capital and with a population of 7½ millions is the largest city and seaport in the world. Its situation—(*i*) at the head of ocean navigation of the Thames and (*ii*) opposite the mouth of the Great European river, the Rhine, has made London the most important town in the world. Railway lines radiate from London in all directions. The Port of London receives about 40 per cent. of the total imports of Britain and sends out about 25 per cent. of the exports. Large vessels stop at Tilbury docks, a few miles from London.

London also manufactures iron goods, chemicals, furniture, clothing, shoes, and railway machinery. There are many printing presses, where books and newspapers are printed. It is also the seat of a University.

CHATHAM to the east and PORTSMOUTH on the south coast are important military and naval stations to protect London from attacks from east and south.

SOUTHAMPTON near the Isle of Wight, has a natural harbour. It is the chief port for mails, passengers and African products.

NORWICH manufactures shoes, agricultural tools and starch. IPSWICH is a wheat market and manufactures agricultural tools.

OXFORD and CAMBRIDGE are important University towns. IMMINGHAM, a new seaport is growing in importance.

(b) *Midlands*:—

BIRMINGHAM, in the centre of the coal-field area (known as the Black Country) manufactures iron goods, fire-arms, ammunition, engines, motor cars, and science apparatus.

Stoke, Burslem and Hanley are noted for their potteries and Stafford for the manufacture of boots and shoes.

(*c*) *South-West England.*—

Exeter is an old Roman city and a railway centre. Plymouth is the largest city in South-Western England and a great naval station.

BRISTOL in the Severn Basin is an important port for trade with North and South Americas and Ireland. Its chief manufacture is cigarettes; tobacco and sugar are imported from the West Indies.

Worcester is noted for its fine porcelain ware.

(*d*) *North England.*—

LIVERPOOL is the second largest port of Great Britain. It exports textile goods and receives raw materials from Argentina, North America, India and West Africa. It is connected by an underground railway to Birkenhead (on the opposite side of the Mersey) which has great ship-building yards.

Newcastle, on the Tyne manufactures chemicals.

LEEDS manufactures woollen goods, clothes, iron and steel goods.

HULL is the third largest port of Britain. Its chief trade is with the ports of the North Sea and the Baltic Sea. Its chief industry is oil refining.

Nottingham, with a dry climate, manufactures lace and stockings.

MANCHESTER is the centre of cotton manufacture. It has been a seaport since the construction of the Manchester Ship Canal. It is a great market where goods from the neighbouring towns are sent for storage, sale and export.

SHEFFIELD is noted for its cutlery, tools, machinery and armour plate.

(e) *Wales*:—

CARDIFF, SWANSEA and NEWPORT export coal to foreign countries. They are also noted for iron works and tin-plate.

PEMBROKE, a natural harbour is a naval station.

(f) *Scotland*:—

GLASGOW, the centre of Scottish coal-fields, on the Clyde has an excellent artificial harbour. It is noted for ship-building, steel goods and an Engineering institution.

PAISLEY, west of Glasgow is noted for cotton and linen threads.

DUNDEE manufactures hemp and jute goods and jams.

EDINBURGH is the capital of Scotland. It has a University famous for the study of medicine. It manufactures paper and is noted for its printing industry. Its chief port is LEITH, which is now part of the city.

ABERDEEN has a good harbour and is an important market for fish, lime-stone and cattle.

(g) *Ireland*:—

DUBLIN, the capital, is an important trading town. It has the advantage of having the shortest sea passage to England. Chief industries are brewing and poplin manufacture.

BELFAST, the capital of Northern Ireland, is a great commercial centre. Its chief industries are ship-building, linen, rope-making and distilling.

LONDONDERRY manufactures linen and ropes.

CORK is the largest town in Southern Ireland and is noted for meat and condensed milk.

QUEENSTOWN on an island in Cork harbour is a calling station for American steamers.

The **Channel Islands** and the **Isle of Man** enjoy legislative independence. Their beautiful scenery makes them favourite holiday resorts. The Channel Islands produce potatoes; the chief industries of the Isle of Man are fishing and lead mining.

CHAPTER XLV

THE SCANDINAVIAN PENINSULA

Scandinavia comprises Norway and Sweden. Till 1905, they were under one king. Norway and Sweden have certain common features but they differ in certain respects. These differences have resulted in political separation.

Surface Features.—Scandinavia resembles Scotland in being a high table-land; the western coasts of both is fiorded and fringed with islands. The southern portion of Scandinavia is higher than the northern; there are many narrow river valleys. The coast of Norway is much more indented than that of Sweden.

Climate.—The climate of Norway is milder than that of Sweden. The coast of Norway is washed by the Gulf Stream Drift, hence the coast is ice-free even to the extreme north. Sweden receives less rainfall than Norway and experiences a more extreme type of climate. The Gulf of Bothnia on the east of Sweden freezes in winter.

Rivers.—Swedish rivers are more useful than the rivers of Norway; they are used for transporting timber. The rivers of Norway are short and rapid. The rivers of both countries are now used as sources of water-power on account of their many rapids and water-falls.

(A) NORWAY

The valley of the Glommen is the most fertile part. The wealth of Norway comes from forests and fisheries.

The chief *crops* are potatoes, oats, barley and hay.

The chief *occupations* are fishing and lumbering. The chief *exports* are timber, forest products (*e.g.*, resin, turpentine), wood pulp, paper and artificial manures. Iron is abundant.

Towns.—OSLO (formerly Christiania) is the capital and exports timber and wood pulp.

BERGEN, TRONDHJEM and STAVANGER are fishing ports.

(B) SWEDEN

Sweden is an agricultural country. The chief *crops* are oats, rye, barley, wheat, potatoes, beet, and fodder. The wealth of Sweden comes from forests and mines. Sweden is rich in minerals; the chief minerals are iron, silver, zinc and sulphur.

The chief *industries* are the manufacture of paper, matches, chemicals, cotton cloth, machinery, cigarettes, leather goods and dairy products.

Towns.—STOCKHOLM, the capital is near Lake Malar, and is an important railway centre and manufacturing town. GOTEBORG, is the chief port and outlet for forest products. MALMO facing Denmark is an important train ferry station.

DANNEMORA and GELLIVARA are mining districts.

The latter is connected with railway to Marvik in Northern Norway, as the Swedish ports are ice-bound for part of the year.

CHAPTER XLVI

THE GREAT EUROPEAN PLAIN—I.

THE BALTIC STATES

The Baltic States comprise four small republics of Finland, Estonia, Latvia and Lithuania. Before the Great War, they formed part of the Russian Empire.

Surface Features.—The region is a shallow depression very much like a saucer; the lowest parts have been inundated, resulting in a large number of lakes. There are no minerals except a little iron in South Finland. Rivers follow intricate steep courses producing waterfalls.

Climate.—The winters are very cold. The northern ports are blocked in winter. In climate and rainfall Finland resembles Southern Scandinavia and the other States resemble Northern Germany.

Vegetation.—The northern portion forms part of the tundra; the rest of the region is covered with forests. A greater part of these forests has been cleared to provide pastures for cattle. Hence dairy-farming is an important industry.

The chief crops are rye, oats, barley, flax, hemp, maize, wheat, hops, beet, potatoes etc.

Manufacture.—The chief manufactures are dairy products, sugar, alcohol, starch and linen. The waterfalls of Finland provide power for paper mills. Lumbering is an important industry in Finland.

Towns.—HELSINGFORS is the capital of Finland and a good port. TAMMERFORS is noted for the manufacture of linen. REVAL is the capital and port of Estonia. RIGA is the capital of Latvia and is an important port and manufacturing city.

POLAND

Poland is now an independent republic. It was occupied by Germany, Austria-Hungary and Russia before the Great War. The valley of the Vistula is fertile and is the chief agricultural and manufacturing region.

The border lands are forested; the plateau lands of the south are rich in minerals—coal, iron, oil and salt.

Towns.—WARSAW, the capital is an important railway centre and manufacturing town. It controls the routes to Berlin, Petrograd, Moscow and Vienna. It manufactures leather, linen, and machinery.

LODZ is noted for cotton goods.

CRACOW has important oil and salt deposits.

The "*Free city of Danzig*" was formerly a part of Poland but is now a free port. It is the best outlet for products of the Vistula "Corridor."

DENMARK

Denmark occupies a very important position being at the entrance to the Baltic Sea. The surface is an undulating lowland not exceeding 600 ft. in elevation. The rainfall is evenly distributed and the climate is equable.

Occupations.—There are no coal-fields or minerals in Denmark and the soil is poor. In spite of these difficulties and of the absence of water-power, the people have made the land fertile by artificial manures. Agriculture and dairy-farming are the chief industries. The chief crops are oats, barley, rye, beet roots and potatoes. Denmark is noted for her dairy-farming. Butter, eggs, bacon, condensed milk and cheese are exported.

Towns.—COPENHAGEN, the capital commands the Sound—chief entrance to the Baltic Sea.

ESBJERG is a port on the west coast and an important fishing centre.

The **Faroe Islands, Iceland** and **Greenland** belong to Denmark. There are many volcanoes and hot springs in Iceland. The chief industries are fishing and cattle rearing. Iceland now enjoys legislative independence.

CHAPTER XLVII

THE GREAT EUROPEAN PLAIN—II.

GERMANY

Germany is a republic since November 1918.

Surface Features.—Germany is divided into two physical divisions:—

1. The North German Plain, or Low Germany.
2. The Southern Highlands or High Germany.

The North German Plain consists of low plains. The coastal lands are sandy; the land behind the coastal belt has a number of small lakes. The fertile portions are used for the cultivation of potatoes and beet root.

The Southern Highlands consist of a complicated region including hills, plateaus, and valleys. These may be divided as follows:—

(*i*) The Lower Rhine Highlands.

(*ii*) The Rhine Rift Valley forming the middle basin of the Rhine.

(*iii*) The mountains encircling the Bohemian Plateau.

(*iv*) The Alpine Foreland, including the outer ranges of the Alps.

Rivers.—The Elbe, Weser and the Rhine flow to the North Sea; the Oder to the Baltic Sea. These rivers flow northwards or north-westwards. Their tributaries flow roughly in east and west directions; canals have been constructed between the different rivers. The Rhine is the most important river in Europe. It enters the sea through Holland, which is unfortunate for Germany.

Climate.—The climate is mild. Going from west to east, the climate becomes a little more extreme with cold winter

and warm summers. The southern highlands receive good rainfall.

Vegetation.—The natural vegetation of Germany consists of firs, pines, oaks, birch, ash and beech trees. Forestry is an important industry. The wood is sawn up by water-power and toys are made of wood.

Agriculture.—The northern plain is made fertile by the use of artificial manures. The chief crops in order of importance are rye, oats, potatoes, wheat, barley, beet, vines, hops and tobacco.

The rearing of pigs and cattle is increasing.

Minerals.—Germany is rich in minerals. Mining and manufactures are more important than any other industry. The chief minerals are coal, iron, zinc, lead, copper and salt. The chief coal-fields are the Rhur, Rhineland, Westphalia and Silesia. The salt deposits of Stassfurt have made Germany a leading country in the manufacture of chemicals.

Manufactures.—Germany is a manufacturing country. Iron and steel goods are made in the Ruhr, the Saar, and Upper Silesia. Cotton goods are made at Barmen. Other manufactures are the manufacture of chemicals, science apparatus, sugar and alcohol.

Trade.—The chief exports are iron and steel goods, machinery, cotton goods, paper, woollen goods, coal, sugar, chemicals, toys, and science apparatus etc. The chief imports are raw materials like cotton, wool, hides and skins, grain, fruit and butter etc.

Towns.—BERLIN, the capital lies in the centre of the northern plain. It is an important railway centre and manufactures machinery and science apparatus.

HAMBURG, at the head of the estuary of the Elbe is the largest port of Germany. Its hinterland includes the whole of the Elbe basin and the basin of the Oder. It is also noted for ship-building, wheat-milling and manufacture of soap. BREMEN, on the Weser is an important port for American import trade.

STETTIN stands on the Oder, and is important for ship-building and manufacture of sugar.

KIEL, at the Baltic end of the Kiel canal, which links the Baltic and the North Seas, is the chief port of the dairy-farming region.

The chief *manufacturing towns* and their manufactures are given below.:—

ESSEN and DORTMUND:—Iron and steel industry.

BARMEN and ELBERFELD:—Silk and woollen goods.

CREFELD:—Silk and velvet.

COLOGNE:—Textiles, scent, soap, cocoa and chocolates.

FRANKFURT:—Chemicals and machinery.

MAINZ:—Leather goods.

MUNICH:—Beer, toys, pencils, science apparatus.

STUTTGART:—Stockings, cotton goods. It is also noted for its printing trade.

DRESDEN:—Woollen and iron goods; china-ware.

LEIPZIG:—Printing books and musical instruments especially pianos.

CHEMNITZ:—Cotton goods, shawls and hardware.

MAGDEBURG:—Sugar.

GOTHA and NUREMBERG:—Toys.

HOLLAND

Surface Features.—Most of Holland consists of the deltas of the Rhine, Meuse, and the Scheldt. The country is flat. The coastal lands are below sea-level and are protected by dykes or artificial embankments. The western half has a rich alluvial soil; the eastern half is higher than the western half.

Climate.—The rainfall is less than 30 inches and is evenly distributed. As compared with the eastern parts of England, the climate is hotter in summer and colder in winter.

Occupations.—(*a*) Holland is an agricultural country. The chief crops are rye, oats, wheat, barley, potatoes, and beet. Flowers are also grown.

(*b*) The rearing of cattle is an important occupation. Condensed milk, butter and cheese are manufactured and exported.

(*c*) Fishing is an important industry.

(*d*) The manufactures are based upon the supplies from the Dutch colonies in the East Indies. The chief manufactures are quinine, tobacco, chocolate, sugar and alcohol.

Trade.—Holland has always occupied a good position in foreign trade on account of certain facilities like the navigable rivers and canals; moreover, the Dutch are good sailors.

The chief exports are cotton and woollen goods, sugar, cheese, butter, condensed milk, oils and paper. The chief imports are textile raw materials, wheat, iron, coal and oil-seeds.

Towns.—The Hague, is the capital.

Amsterdam, the largest commercial city and port stands on the Zuider Zee. It is connected with Ijmuiden on the North Sea by a deep ship canal; another canal joins it to Rotterdam. Amsterdam is the centre of the diamond-cutting industry.

Rotterdam, an important port is reached by the New Waterway Canal. It is the natural key to the Rhine Valley.

Delft, manufactures earthenware.

Flushing and the Hook of Holland are smaller ports for passenger and mail traffic with England.

BELGIUM

Natural Regions.—Belgium is divided into three distinct regions:—

(i) *The South-Eastern Highlands.*—This region consists of the Ardennes Plateau. The climate is severe, and the soil is not fertile. There are large deposits of coal and iron, on account of which Belgium is a manufacturing country.

(ii) *The Central Plain* consists of the basin of the Scheldt and the sandy tract of the Campine touching Holland. This region also contains coal. This is mostly an agricultural area. The chief crops are rye, oats, wheat, flax and beet.

(iii) *The Coastal Lowlands* have a poor soil useless for agriculture. The chief occupations of this region are dairy-farming, cattle-rearing and fishing. The coast is poor with no good natural harbour.

Manufactures.—Belgium is a manufacturing country. The chief manufactures are glassware, cotton goods, linen, and sugar.

Communications.—There is a net-work of railways and roads; canals and rivers are also used as waterways.

Trade.—The chief exports are iron and steel, zinc, glass and glassware, cotton goods, linen, lace, sugar and cut diamonds.

The chief imports are crude diamonds from the Belgian Congo and Angola; cereals, cotton, wool and hides mostly from neighbouring countries and Argentina.

Towns.—BRUSSELS, the capital, is the largest city and a railway centre. It manufactures lace and carpets.

ANTWERP, the chief port, is a commercial centre. It is noted for ship-building. It has largely a transit trade. LIEGE, NAMUR, MONS and CHARLEROI are manufacturing

towns noted for machinery, cutlery and glassware. VERVIERS is noted for lead and zinc mines and for woollen goods.

GHENT, an important railway centre is noted for cotton and linen goods. COURTRAI and TOURNAI are noted for linen manufacture.

LUXEMBURG

Luxemburg is a small independent state south of Belgium. It is rich in iron ore which is sent to Belgium for smelting. The chief crop is the vine.

FRANCE

France is the second largest country in Europe and has certain advantages as regards her position as compared with Great Britain. She has access to the English Channel and the North Sea on the north, to the Atlantic on the west and to the Mediterranean on the south. She is therefore able to trade with countries of Northern Europe, North America and the Far East. Her chief disadvantage is the unsafe eastern border which has made France the battle-field of Europe.

Surface Features.—France may be divided into the following physiographic divisions:—

(i) *Northern France*, consisting of the Paris Basin, forms part of the Great European Plain. It resembles the southern part of England.

(ii) *The Central Plateau* with the Cevennes on the east and south-east.

(iii) *The Alps* forming the south-east boundary of France.

(iv) *The Rhone Valley*, lying between the Alps and the Cevennes, a very fertile region.

(v) *The Mediterranean Region* lying between the Cevennes and the Mediterranean Sea.

The Pyrenees separate France from Spain, the Vosges from the rift valley of the Rhine, and the Jura mountains from Switzerland.

Rivers.—The rivers of France are commercial highways. The Rhone rises in Mount Gothard and flows to the Mediterranean; its tributary is Saone. The Rhone is a fast river and hence is used for down-stream traffic. Its valley is very fertile. The Loire is the longest river in France; its valley is the richest region in France and is known as the "Garden of France." The Loire and the Garonne flow into the Bay of Biscay, and the Seine flows into the English Channel.

The Alsace-Lorraine territories of France touch the left bank of the middle Rhine, whose navigation from the mouth to the frontier of Switzerland is free to all nations.

Climate.—France enjoys certain advantages as regards her climate and therefore for products depending upon climate. We may divide France into the following climatic regions:—

(*i*) The north, north-west and west have a climate of the Western Europe Type. Rain falls throughout the year. The sea-coast is open to the influence of the winds and currents of the North Atlantic Ocean.

(*ii*) The central highlands have climate like Central Europe.

(*iii*) The Mediterranean Type of climate in the south, with dry and warm summers, and wet and mild winters.

Agriculture.—The chief crops are wheat, rye, oats, flax, maize, potatoes, tobacco, beet and the vine. The chief fruits are apples, olives, peaches, grapes etc. Mulberry is grown in the Rhone valley for the manufacture of silk.

Animals.—The domestic animals are cattle (in the wet region of north-west), horses and pigs. Cheese and butter are manufactured.

Minerals.—France has only one large coal-field in the north, which is an extension of the coal-field of Belgium. There are a few smaller coal-fields in the Central Plateau. France is rich in iron ore; the most important is the Lorraine field.

Manufactures.—Small supplies of coal have resulted in the development of water-power from the streams in the Alps, the Pyrenees and the Cevennes.

The chief manufactures of France are:—wines of different kinds, iron goods, silk, cotton and woollen goods, china-ware, glass-ware and watches.

Trade.—The chief exports are clothes made of silk, cotton and wool, linen, iron and steel ware, motor cars, china-ware, soap, scents, and wine. The chief imports are coal, foodstuffs like grain, flour, coffee and sugar; cotton, wool, and chemicals.

Towns.—PARIS, the capital, occupies a central position. It is a very large railway centre with lines radiating in all directions, and a large trading centre. It manufactures fancy goods *e.g.*, jewellery, ladies' hats, gloves etc.

The following are the *chief ports* of France:—

MARSEILLES, the chief port on the Mediterranean, commands the trade with Eastern countries. It is connected with the Rhone with a canal, and commands the route along the Rhone corridor to Paris. Its chief manufactures are soap-making, extraction of olive oil and manufacture of wine and silk goods.

HAVRE and ROUEN are ports trading with America; the chief imports are cotton, wool, coffee and wheat. Havre exports butter, eggs and cheese; Rouen is also noted for the weaving of cotton cloth and has the same advantages as Manchester as regards damp climate and situation.

DUNKIRK is situated in the northern coal-field. It imports wool and is a fishing port.

BORDEAUX is noted for the manufacture of wine which is exported.

DIEPPE, BOULOGNE on the English Channel coast, LA ROCHELLE on the west and CETTE in the south are important fishing ports. The fish caught includes cod, herring and sardine.

The chief *naval ports* are CHERBOURG on the north coast; LORIENT and ROCHEFORT, on the west coast; and TOULON on the Mediterranean.

Other *manufacturing towns* are:—

LILLE manufactures iron goods, cutlery, sugar, cotton, linen and woollen goods.

VALENCIENNES is noted for lace; ROUBAIX for woollen goods; AMIENS, for cotton-weaving; LYONS for silk goods; NANCY for iron and steel goods; LIMOGES (on the western edge of the central plateau) for chinaware and porcelain goods and LE CREUSOT for war-materials, locomotives and motor cars.

DIJON is an important railway centre in the Saone Valley being the meeting place of the routes from Brindisi, Switzerland and Marseilles.

NOTE.—During the Great War, the coal-mines in the north-east were destroyed by the Germans. Hence according to the Treaty of 1919, Alsace and Lorraine were restored to France. The Saar Basin coal-fields now belong to the French till 1934 when their ownership will be revised by the League of Nations. Alsace lies between the Vosges and the Rhine; Lorraine between the Vosges and the Ardennes. Strassburg and Metz are important fortified towns; the former is also a railway and trade centre.

CHAPTER XLVIII

THE CENTRAL HIGHLANDS AND THE DANUBE LANDS

Central Europe consists mostly of the highlands of Switzerland and the Danube Lands. The course of the Danube has been described in Chapter XL page 231.

The Danube Lands may be divided into the following natural regions:—

1. *The Bohemian Plateau*, which is a saucer-shaped depression surrounded by highlands. The soil is alluvial and very fertile; in some places the soil is volcanic. The chief crops are wheat, oats, barley, beet, hops and vine. The region is also rich in minerals *e.g.*, coal and iron.

2. *The Eastern Alps* with warm summers and cold winters. This region is forested and is rich in minerals like coal, iron, copper, mercury and salt. This region is a manufacturing area.

3. *The Hungarian Plains.*—This region has very little rainfall; winters are cold and summers very warm. The chief crops are maize, wheat, vine, tobacco and beet.

4. *The Carpathians and Transylvania.*—This region is very forested. Timber is exported. The chief minerals are iron, gold, silver and lead.

5. *The Rumanian Plains.*—This region is an extension of the Russian plain. The chief crops are maize, wheat, vine and tobacco. Petroleum is found in this region.

The political divisions of the Danube Lands are quite different now from what they were before the Great War. The Danube Lands include.—

1. Austria. 2. Czechoslovakia. 3. Hungary.
4. Yugoslavia. 5. Rumania. 6. Bulgaria.

The first four are formed by the splitting of the old Empire of Austria and Hungary.

SWITZERLAND

The mountainous nature of the country has preserved its independence. The country is noted for its scenery and its lakes and therefore attracts a large number of tourists from all parts of Europe. It has been called the "Playground of Europe."

Surface Features.—Switzerland may be divided into three regions:—

(*i*) *The Jura mountains* in the north forming the Franco-Swiss frontier.

(*ii*) *The Alps* occupying the southern half; this part is very mountainous. Mount Blanc is the highest peak. St. Gothard forms the watershed between the Rhine and the Rhone. There are many long and narrow lakes.

(*iii*) *The Swiss Plateau* lying in the centre. The lakes of this region are Neuchatel, Geneva, Zurich and Constance. These lakes are noted for their beautiful scenery.

Climate.—The climate depends upon altitude. The central part receives rainfall throughout the year. The presence of a large number of lakes also modifies the climate.

Agriculture.—The chief occupation of the people is rearing of cattle, goats and pigs, hence the manufacture of cheese and condensed milk forms an important industry.

The land is not fertile but the Swiss through their industrious habits and scientific methods have cultivated rye, oats, wheat, potatoes, vine, maize and mulberry.

Manufacture.—There is very little coal or iron, yet Switzerland is a manufacturing country; this is due to the fact that the Swiss have trained themselves in the manufacture of things requiring small quantities of raw materials.

The chief manufactures are watches and clocks, silk goods, leather goods, embroidery, cheese and condensed milk. Water-power is abundant; factories and many railways are run by electricity.

Towns.—BERNE is the capital and manufactures cotton and silk goods.

GENEVA, and NEUCHATEL manufacture watches and clocks. Geneva is the head-quarters of the League of Nations.

ZURICH, a large manufacturing town, is noted for watches and for embroidery and fine silk goods.

The towns round the lakes are tourist-resorts of which the largest is LUCERNE.

AUSTRIA

Austria includes the eastern portion of the Alps, and the valley of the Danube. It is mostly a mountainous country.

The chief crops are barley and oats which are cultivated in the Danube Valley.

Towns.—VIENNA, the capital occupies an important position at the intersection of routes to Poland, Russia, Germany and Italy. It manufactures furniture, machinery and leather goods. Photography is a developing art.

EISENERZ is noted for iron mines and mineral salts.

HUNGARY

Hungary consists of the plain of the middle Danube and its tributary the Tisza. The land is flat and fertile. The chief crops are maize, wheat, vine, tobacco and beet. The chief industries are flour-milling, manufacture of sugar and wine.

Towns.—BUDAPEST, the capital, stands on the Danube. It is an important railway centre; railway lines radiate in all directions. It manufactures velvet and silk goods and has many flour mills.

CZECHOSLOVAKIA

Surface Features.—It is a mountainous country and may be divided into the following divisions—

(*i*) The Bohemian Plateau in the west described above; *see* page 268.

(*ii*) The valley of Moravia, dividing the country into two parts; the climate and products resemble those of Bohemia.

(*iii*) Slovakia, in the east which is mountainous.

Agriculture.—The chief crops are wheat, potatoes, hops, rye, oats and barley.

Minerals.—Iron and coal are abundant in the Bohemian Plateau and the Moravian Lowlands. Karlsbad is noted for its mineral springs.

Manufactures.—The chief industries are manufacture of paper, beer, leather goods, sugar, machinery, cotton and woollen goods.

Towns.—PRAGUE, the capital occupies a central position. It is situated near coal and iron mines and is a manufacturing town.

PILSEN has coal and iron mines. It is a manufacturing town.

BRUNN manufactures cotton, woollen and iron goods.

YUGOSLAVIA

Yugoslavia or Greater Serbia includes the old kingdoms of Serbia and Montenegro and a tract of land along the Adriatic Sea. The northern part forms an extension of the Hungarian plain; the coastal lands of the Adriatic Sea are mountainous, and the southern part which is also mountainous forms part of the Balkan Peninsula.

Agriculture.—The chief crops are wheat, maize and tobacco. Vine and plums are also grown. The natural vegetation consists of oak and beech. Pig-rearing is an important occupation.

Towns.—BELGRADE, the capital, occupies an important position at the confluence of the Danube and the Save. It commands the railway traffic to Constantinople.

NISH is an important railway centre commanding the route to Salonika and Constantinople.

SPALATO and RAGUSA are small ports on the Adriatic Sea. Most of the trade of Yugoslavia passes through the Greek port of Salonika and the Italian ports of Trieste and Fiume. Serbia has a free zone in Salonika.

RUMANIA

Rumania is now double its pre-War size on account of the inclusion of certain districts from Hungary and Russia. The Carpathian Mountains form a barrier in the centre. To the west of these mountains are the valleys of Transylvania and the Banat and to the east are the Rumanian plains of Wallachia, Moldavia and Bessarabia. Wallachia is the valley of the Lower Danube.

Products.—The forests are rich in fir, oak and beech which support many pigs and export timber. The chief crops are wheat, maize, vine and tobacco. There are many oil-fields; the most important is at Ploesti.

Towns.—BUCHAREST, the capital, commands the chief routes from Southern Russia.

CONSTANTA is an important port on the Black Sea. It is connected by a pipe-line to the oil-fields of Ploesti.

BULGARIA

Bulgaria is a small state lying south of the Wallachian Plain of Rumania. The Balkan Mountains and the Rhodope Mountains cover a greater part of the surface; the Danube is in the north. Strictly speaking, Bulgaria forms part of the Balkan Peninsula rather than that of the Danube Lands. Summers are very warm and winters are very cold.

Agriculture.—The forests are full of oak and beech which support a large number of sheep, pigs and goats.

The chief crops are wheat, maize, tobacco and beet. Wild rose grows abundantly on the hill slopes; attar of roses is made from it.

Towns.—Sofia, the capital occupies a strategic position on the Orient Express Route.

Varna is a port on the Black Sea and is developing in the manufacture of cotton goods.

CHAPTER XLIX

THE MEDITERRANEAN REGION

(A.) THE IBERIAN PENINSULA

The Iberian Peninsula includes Spain and Portugal. Portugal is a republic. Gibraltar, a small British possession in the south also forms part of the peninsula.

Surface Features.—The peninsula consists mostly of a plateau surrounded by coastal lands. The rivers have cut deep valleys in the plateau. Portugal presents striking physical contrasts to Spain. The following are the natural regions based on relief and climate:—

(i) *The Meseta.*—It occupies the central plateau. The chief mountains are the Sierra de Guadarrama and Sierra Morena. Winters are cold, summers are very warm. The chief occupation is rearing of sheep and the chief crops are wheat and vine. This region is rich in minerals.

(ii) *The Northern Mountains* including the Pyrenees and the Cantabrian Mountains. This region is very fertile. The chief crops are maize and vine. It has very rich mineral deposits.

(iii) *The Plains of the Ebro and the Guadalquiver* are lowland areas and are very fertile.

(iv) *The Mediterranean Coast-lands* with typical Mediterranean climate and fruits.

(v) *The Portuguese Coast-lands* with typical Mediterranean climate.

Rivers.—The Guadalquivir, Guadiana, Tagus and the Douro drain westwards to the Atlantic and the Ebro to the Mediterranean. The rivers draining westwards have rapids and waterfalls not far from the sea. Thus the portions of their basin lying in Portugal are navigable.

Climate.—The coastal lands are under the influence of the sea while the Meseta experiences extremes of temperature.

Vegetation.—The vegetation is transition from West Europe to Sahara. There are extensive forests of cork oak, chestnuts and pine. The chief crops are wheat, barley, oats, rye, maize, peas, beans, and rice. Olives, vines and fruits grow abundantly.

Fisheries.—Both Spain and Portugal have important fisheries along the north-west coast and along the Mediterranean coast.

Minerals.—The Iberian Peninsula is very rich in minerals. The chief areas are (1) the Cantabrians, (2) the Sierra Nevada and (3) the Sierra Morena.

The chief minerals are coal, lead, copper, iron, zinc, and mercury.

Towns.—MADRID, the capital of Spain, occupies a central position.

BARCELONA is noted for the manufacture of wine, and cotton and woollen goods. As a port, it is a rival to Marseilles. It is situated close to iron mines and the great fruit-growing area of Spain.

VALENCIA and CARTAGENA are noted for their fruits and silk industry.

TARRAGONA, manufactures wine. CADIZ and MALAGA manufacture and export wine and brandy.

LISBON, the capital of Portugal is an important port. It exports cork and fruits and imports rubber and cocoa.

OPORTO at the mouth of the Douro is famous for its Port wine.

Spain and Portugal are great countries of the past; the people were great sailors but on account of disunion and rebellions in their own country, the Spaniards have lost almost all their foreign possessions. They did not try to colonize their possessions in America.

Gibraltar.—The Rock of Gibraltar (British) is separated from Spain by a narrow strip of land. Gibraltar com-

mands the entrance to the Mediterranean and has large stores of coal. It is an important commercial and naval port.

(B.) ITALY

Surface Features.—Italy may be divided into the following regions :—

(i) *Portions of the Southern Alps* with typical mountain scenery and vegetation. There are many beautiful lakes in this region. Vine and olive grow abundantly.

(ii) *The Alluvial Plain of the Po*, known as the Lombardy Plain. This part is very fertile. Dairy-farming and cattle-rearing are important industries. Mulberry grows very abundantly hence this region is a great silk-producing area. The chief crops are wheat, maize, rice, hemp, flax and grapes.

(iii) *Peninsular Italy* containing the Apennines extending into Sicily. The soil is volcanic and is fertile. This region has some mineral deposits of which marble of Carrara is most important. Oak and chestnut grow on mountain-slopes. The chief crops are wheat, maize; vine and olive also grow.

The chief **rivers** are the Po and the Tiber.

Climate.—The Alpine region and the Lombardy plain have an extreme type of climate, but the climate of Peninsular Italy is typically of the Mediterranean type.

Malaria is very common in marshy lowland tracts and to prevent it, eucalyptus trees are being planted in marshy places.

Industries.—The chief agricultural products are mentioned above under the natural regions. There is no coal in Italy but water-power is very cheap. Iron is found in Elba and sulphur in the volcanic districts of Vesuvius and

Sicily. The Lombardy plain is a manufacturing area. The chief manufactures are silk and silk goods, cotton goods, motor cars, wine and cheese.

Trade.—The exports of Italy are silk, cotton and woollen goods, motor cars, hats, rubber goods, *e.g.*, tyres etc., fruits, cheese, wine and eggs. The chief imports are raw cotton and wool, coal, copper, wheat and coffee.

Towns.—ROME, the capital, stands on the Tiber. It is the seat of the Vatican—the Pope's residence. The ruins of ancient Rome attract a large number of visitors. Its present port is Civita Vecchia as the mouth of the Tiber is silted up.

NAPLES is the largest town and has a good harbour. Recently it has become an industrial town manufacturing lace, cotton goods, motor cars and sugar.

FLORENCE, an old seat of art and learning, is in the centre of the wheat producing area and manufactures macaroni. PISA is an old port famous for its leaning tower.

GENOA, on the Gulf of Genoa is an important port. It manufactures cotton goods, soap and machinery.

VENICE, also known as the "Queen of the Adriatic" is a beautiful city. It is built on many sand islands and is famous for its beautiful buildings and art galleries. It manufactures gold lace and glassware.

TURIN commands the route to the Rhone basin. It manufactures motor cars.

MILAN is the junction of many routes to the north and to the east and west. It is a railway centre and has a large railway workshop.

BOLOGNA is an important trading town and railway centre in the Lombardy Plain.

TRIESTE and FIUME are Italian ports but mostly used for the trade of the Lower Danube lands.

LEGHORN is an important port on the west coast near the iron mines of Elba.

BRINDISI, is the nearest port to the Suez Canal and was formerly used as a mail port but has lost its importance due to the late running of Italian trains.

(C.) THE MEDITERRANEAN ISLANDS

Excluding the large number of Islands of Greece, which we will discuss under the Balkan Peninsula, the following islands of the Mediterranean are of strategic and economic importance :—

Sicily really forms part of the Peninsular Italy. It forms a link between the Apennine Mountains and the Atlas range of Africa. The great volcano of Etna is in the east, and is noted for its sulphur. The sulphur is refined at CATANIA. The soil is very fertile and the chief products are lemons, mulberries and oranges. PALERMO the capital is noted for its lemons and oranges; it has iron industries. MESSINA is noted for the manufacture of silk.

Stromboli in the Lipari Islands in an active volcano. It is called the natural lighthouse of the Mediterranean on account of the reflected light from the lava.

Sardinia is rich in minerals *e.g.*, lead, zinc and salt. Mining and fishing are chief occuptions. Fruits, wheat and pulses are grown. CAGLIARI is the port and capital.

Elba is rich in iron ore.

All the above islands belong to Italy.

Corsica (French) contains minerals but these have not been developed. Fruits are grown along the coasts.

AJACCIO is the capital and port.

Malta (British) occupies a strategic position in the centre of the Mediterranean. It is very fertile; fruits and potatoes are grown. The chief industry is hand-made lace. VALETTA, the capital has a good harbour. It is a coaling and repairing station for ships.

The Balearic Islands produce vine, oranges, lemons etc.

PALMA is the chief town.

Cyprus (geographically a part of Asia) belongs to the British and is noted for wheat, olives and wine.

(D.) THE BALKAN PENINSULA

The Balkan Peninsula comprises Yugo-slavia, Bulgaria, Albania, Greece and Turkey. Of these, the first two have been discussed under the Danube Lands.

Surface Features.—The surface consists of highlands which separate the river valleys. The rocks consist of limestone. The chief rivers are the Morava, Vardar, and the Maritza; the chief routes are along their valleys.

Climate.—The western and southern coastlands have typical Mediterranean climate *i.e.*, mild and wet winters. and hot and dry summers. The north-eastern region has very cold winters, and hot and wet summers.

(*a*) ALBANIA

Albania is a small mountainous state. It is the wildest region in Europe. SCUTARI is the largest town.

(*b*) GREECE

Greece may be divided into:—

(i) *The northern plains* of Thrace, Thessaly and Macedonia. The chief crops are the vine, tobacco, maize, wheat, cotton, and olives. This region is noted for its ancient learning and civilisation.

(ii) *Central Greece* noted for the rearing of sheep and goats and for minerals like lead, iron, zinc and marble.

(iii) *The Morea Peninsula* cut by the Corinth canal, noted for grapes and currants.

(iv) *The Archipelago* including also Crete. All these are noted for seedless grapes. Rearing of cattle and sheep is the chief occupation. Corfu is a winter health resort. Paros is noted for its white marble and Milos for sulphur and manganese. Crete produces olives, raisins and manufactures soap. Recent excavations in Crete have shown signs of ancient civilisation.

Industries.—Rearing of cattle and agriculture are the chief occupations. The chief manufactures are wine, olive oil, cheese, leather and soap.

Towns.—ATHENS, the capital is a famous city. Its port is PIRAEUS which has a natural harbour.

SALONIKA is an important port, railway centre and trading town.

PATRAS is an important port exporting currants.

(c) TURKEY

Turkey in Europe is now a very small territory. Wheat and fruits are grown.

Towns.—ADRIANPOLE is noted for the manufacture of silk and carpets.

CONSTANTINOPLE on both sides of the arm of the Bosphorus (known as the Golden Horn) occupies an important position commanding the routes to Asia and Europe.

The Dardanelles and Bosphorus have been demilitarized.

CHAPTER L

THE RUSSIAN PLAINS

Surface Features.—The Russian lands in Europe are flat plains with the low Ural Mountains in the east and the Caucasus Mountains in south-east. The Valdai Hills are very low.

The Volga is the greatest river of Russia. It rises in the Valdai Hills and flows into the Caspian Sea. Its chief tributaries are the Oka, Kama and the Samara.

The Dniester, Dnieper and the Don flow into the Black Sea; the Northern Dvina into the Arctic Ocean and the Western Dvina into the Baltic Sea.

The larger rivers are navigable and the central rivers are joined by canals. The chief drawback is that the navigation is blocked by ice during the winter.

Divisions.—The Union of Soviet Socialist Republics (U.S.S.R.) was formed in 1922 and includes the following republics.—

1. The Ukraine.
2. White Russia.
3. The Russian Socialist Federal Soviet Republic.
4. The Trans-Caucasian Republics of Armenia, Georgia and Azerbaijan discussed under Asia.

THE UKRAINE

The Ukraine has a mild climate. The land is fertile. It is entirely an agricultural region. Wheat, rye, oats, barley and maize are cultivated in the Black Earth Lands; smaller quantities of tobacco, beet and hemp are also grown.

Coal and iron are mined in the valley of the Donetz.

Towns.—ODESSA on the Black Sea is the chief port and exports wheat.

KIEV is an ancient route-town; its chief industries are flour-milling and manufacture of tobacco and woollen goods.

KHARKOV is a manufacturing town and capital of the Ukraine.

WHITE RUSSIA

White Russia is a large tract of land mostly barren. It is marshy and has a very scattered population. A little rye, oats, flax and hemp are grown.

MINSK is the capital. It lies on the railway line from Warsaw to Moscow.

THE RUSSIAN SOCIALIST FEDERAL SOVIET REPUBLIC

This republic comprises the old Russian Empire *minus* Finland, Baltic States, Poland, the Ukraine and White Russia. It also includes the Asiatic territory of Siberia discussed under Asia.

Climate.—The climate is of extreme continental type. The summers are hot and the winters very cold. Nearly the whole country is frozen in winter.

Natural Regions.—The following natural regions are based on vegetation:—

1. *The Tundra* in the extreme north has extreme climate and no rainfall. Fishing and hunting are the chief occupations. Chief exports are oils, timber, furs, skins and tallow. ARCHANGEL on on the White Sea is the chief summer port.

2. *The Coniferous Forest Belt.*—It is a virgin forest. Lumbering and forestry are the chief industries. The chief manufactures are tar, resin and paper pulp. The chief crop is flax.

LENINGRAD (formerly Petrograd and before that St. Petersburg) occupies a very important position and brings Russia in closer contact with Western Europe. It is the chief port of Russia for trade with European countries.

3. *The Deciduous Forest Belt and the Urals.*—This region occupies the central lands of Russia. This is an agricultural region as the forests have been mostly cut down. The chief crops are flax, rye, oats, barley, potatoes, oil-seeds, and hemp. This region is rich in minerals *e.g.*, iron, gold, copper, platinum and gem stones.

MOSCOW, the capital of Russia, is an important Railway centre and manufactures machinery, and cotton, woollen and linen goods.

PERM and TULA have large iron and steel works. NISHNI NOVGOROD is noted for its annual fair which attracts merchants from different parts.

4. *The Black Earth and the Steppes* stretch from the Ukraine to the middle Volga. The black soil is noted for its wheat; other crops are barley and maize. Large deposits of coal and iron are found in the Donetz Valley. Wheat is sent by rail to Odessa for export.

SAMARA and SARATOV are important river ports on the Volga and manufacture tobacco and woollen goods.

5. *The Desert Region* includes the salt desert east of the Steppes extending up to the Caspian Sea.

ASTRAKHAN, at the mouth of the Volga is an important trading town. The chief trade is in fish and wool; petroleum oil is brought from Baku.

6. *The Caucasus* region is noted for mineral oils.

QUESTIONS ON SECTION II.

1. Give an account of the trade of Russia. Discuss the relative advantages and disadvantages of Britain and Germany for participating in Russian trade.

2. Draw a map of the Basin of the Danube. Indicate the countries which it drains. Describe the chief products of this region.

3. Compare and contrast the Iberian Peninsular with the Scandinavian Peninsula as completely as you can.

4. Give an account of the industries of Belgium and Switzerland. What special advantages are possessed by these countries?

5. Discuss the distribution and importance of the coal-fields of Great Britain and Germany.

6. Describe the course of the Rhine and discuss the significance of its valley as a traffic route.

7. Trace the interdependence of physical factors and agricultural production in Holland.

8. Write a short geographical account of the cotton industry of Great Britain.

9. Indicate the broad distribution of summer and winter temperatures in Europe.

10. Where are the chief strategic centres of the Great European Plain? Account for their position.

11. What are the chief routes from the shores of the Mediterranean to Central and Northern Europe?

12. Compare the Rhine with the Danube as commercial waterways into the interior.

13. Describe the chief physical features and their consequent economic effects in Denmark, Sweden and Norway. How far is the trade of Great Britain interested in the matter?

14. Point out how far the rivers and river valleys of the British Isles have influenced their industrial prosperity.

15. What is meant by a rift-valley? The rift valley of central Scotland is one of the only two important rift valleys in Europe. Why? Which is the other example in Europe?

16. Describe and account for the distribution of vegetation zones in European Russia.

17. Discuss the relative advantages and disadvantages for pursuing the iron and steel industry in France, Belgium, Germany and Italy.

18. The surface rock exercises a marked effect on the life of a region. Examine this statement with reference to the regions of the Iberian and the Balkan Peninsulas.

19. Give a short account of the North Sea and the Baltic Sea with reference to (*a*) the floor of the sea and (*b*) the influence of its waters on neighbouring countries.

20. "The distribution of sheep, cattle and cereals in the British Isles is an index to the existing climatic conditions." Discuss and illustrate this statement.

SECTION III—NORTH AMERICA

CHAPTER LI

PHYSICAL FEATURES

North America is triangular in shape and its broadest part is in the north. The great islands in the Arctic Ocean and the north coast-lines lie within the Arctic Circle. The southern portion of Mexico lies outside the tropics; so we observe that the largest portion of the continent lies in the North Temperate Zone. The **coast** of North America is indented. The east coast is more broken than the west. The north coast remains frozen practically throughout the year and is useless. The coast is rugged and irregular in places which may be regarded as inundated valleys, that is, the land has been depressed, as for instance, New York harbour and the mouth of St. Lawrence and Hudson Bay.

Surface Features.—The continent of North America may be divided into the following broad divisions:—

1. *The Western Highlands or the Rocky Mountain System.*—The western highlands consist of long ranges of high mountains running in north and south directions. The eastern range of these western highlands is known as the Rocky Mountains and the western as the Coast Range. Between these two ranges there are high plateaus crossed by mountains. In the north we have the Yukon Plateau and below this, the Plateau of Columbia between the Cascade and the Rocky Mountains. The Colorado Plateau lies between the Sierra Nevadas and the Rocky Mountains. Western Sierra Madrie forms the western edge of the Plateau of Mexico. The whole system of mountain ranges and plateaus is known as the Western Cordillera.

2. *The Eastern Highlands* include:—

(*a*) The Laurentian Highlands of eastern Canada including the Labrador Peninsula in the east and the chain of Great Lakes in the west.

(*b*) The Appalachian system extending from Newfoundland to the Gulf of Mexico, running in north-east to south-west direction.

(*c*) The coastal plain between the Atlantic and the mountain system.

3. *The Central Plains* occupy about one-third of the continent with a large number of lakes in the northern plains. These plains include the well-known Prairies of North America. Hudson Bay is similar to the Baltic Sea, both being formed by the sinking of the land. The Central Plains rise gradually to the Rocky Mountains.

Rivers.—The rivers of North America may be classified into the following groups:—

1. *Rivers flowing into the Atlantic Ocean.*—The Great Lakes are drained by the St. Lawrence river. The Hudson and its tributaries have cut gaps through the Appalachian Mountains affording easy routes into the interior.

2. *Rivers flowing in the Gulf of Mexico.*—These rivers drain the whole of the central plains in the United States. The Mississippi River is one of the greatest rivers of the world. Its chief tributaries are the Ohio on the east and the Missouri, Arkansas and Red River on the west.

3. *Rivers flowing into Hudson Bay.*—The Saskatchewan and the Red River drain Lake Winnipeg, the outlet of which to Hudson Bay is through the Nelson River.

4. *River flowing into the Arctic Ocean.*—The Mackenzie is the only important river.

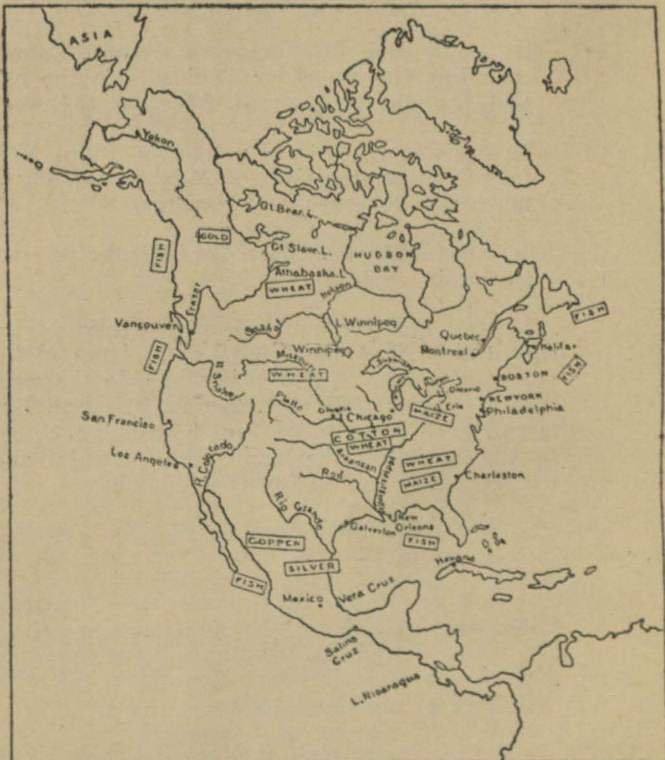


FIG. 62. North America—Rivers and Economic Products.

5. *Rivers draining into the Pacific Ocean.*—The Yukon, the Fraser, the Columbia and its tributary the Snake, the Sacramento and the Colorado.

The rivers of North America are important as commercial highways and as sources of power and for irrigation. The Mississippi and its tributaries are important water highways. The Great Lakes form a series of water-ways which are of great commercial importance to Canada and

the United States. The Niagara Falls between Lakes Erie and Ontario are important for their supply of water-power.

The Great Ice Age.—In very remote ages the north of North America and northern parts of Europe were buried under a great sheet of ice. These ice sheets receded as the climate became warmer gradually and great fragments broke off and floated away. The result of these great ice sheets has much to do in the forming of waterfalls and lakes and the sinking of the northern portion of the continent. Ice sheets very similar to these can be seen to-day in Greenland and in the Antarctic Continent.

Lakes.—The most important system of fresh water lakes includes the Great Lakes consisting of Superior, Michigan, Huron, Erie and Ontario; they are all connected with one another by the river St. Lawrence. Other lakes of importance are Winnipeg, Athabasca, Great Slave and Great Bear. There is a great salt lake in the western United States. The Welland Canal circumvents the Niagara Falls.

The "Soo" canals avoid the rapids of the St. Mary river. These canals are of great commercial importance to both U. S. A. and Canada, and are playing a big role in the iron and steel industry.

Minerals.—North America is very rich in minerals; gold and silver are found in the western mountains; iron and copper in the Laurentian Mountains; coal and iron in the Appalachians. Gold is found in the basin of the Yukon, British Columbia and California. Silver is found in Mexico, United States and Canada; Mexico is the largest producer of silver in the world. There are extensive deposits of coal and petroleum in the western mountains. Copper is mined on the shores of Lake Superior. Other minerals are mercury, lead, nickel, sulphur, zinc, iron and aluminium.

CHAPTER LII

CLIMATE AND VEGETATION

Climate.—The following factors influence the climate of North America:—

1. *Latitude.*—The north coast of Canada, the Arctic Ocean Islands and a greater part of Greenland lie within the Arctic Circle; Southern Mexico lies within the Tropics. Hence the greatest part of North America lies in the North Temperate Zone.

2. *Elevation.*—The continent contains extensive plains, plateaus and high mountain ranges.

3. *Distance from the Sea.*—The interior part of the continent which is far removed from the sea, will have a higher temperature in summer than the coast-lands in the same latitudes and in winter the conditions will be just the opposite.

4. *The Alignment of Mountains.*—The Rocky Mountrains lie in a north-south direction; hence they act as a barrier to the Westerlies or the Anti-Trade Winds. There is no mountain range in an east-west direction, hence in winter the north cold winds penetrate the central plains and in summer the rain-bearing winds from the Gulf of Mexico bring heavy rainfall to the plains.

The *temperature* conditions can be best studied from the isothermal map. *See* Fig. 63 which gives the isotherms for January and July. Observe that:—

(*i*) In January the isotherms bend southwards in the middle of the continent; the conditions are almost reversed in July.

(*ii*) In January a greater part of the continent is below the freezing point. Trace the isotherm of 32°F in January, which isotherm is absent in July except in extreme north (not shown in the map).

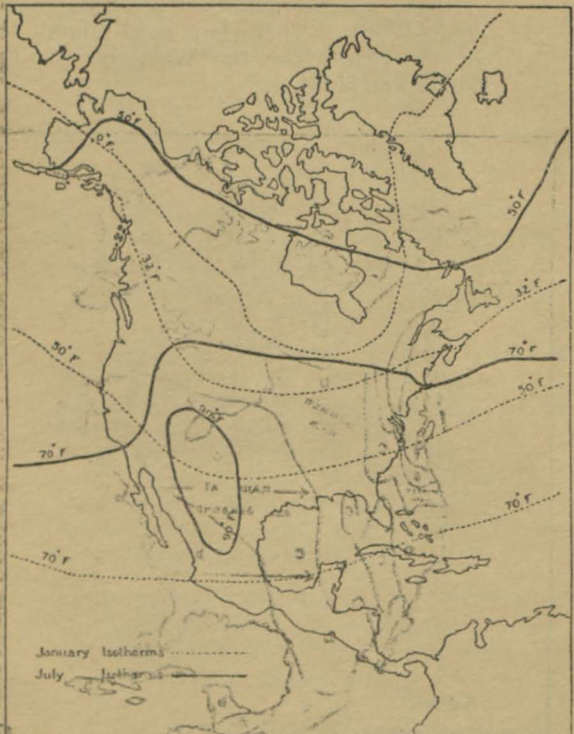


FIG. 63. Isothermal Map of North America.

(*iii*) The east coast is much colder than the west. This is due to (*a*) warm ocean currents on the west and the cold Labrador current on the east; and (*b*) the Westerlies on the east are land-winds and are dry.

(*iv*) The July isotherm of 50°F marks the northern limit of vegetation.

Study the *rainfall* of the continent from the rainfall map (Fig. 64) and observe that:—

(*i*) The northern part of the continent is under the influence of the Westerly Winds and the southern part under that of the North-east Trade Winds. There is a good rainfall throughout the year where the Westerlies and Trade Winds are blowing.

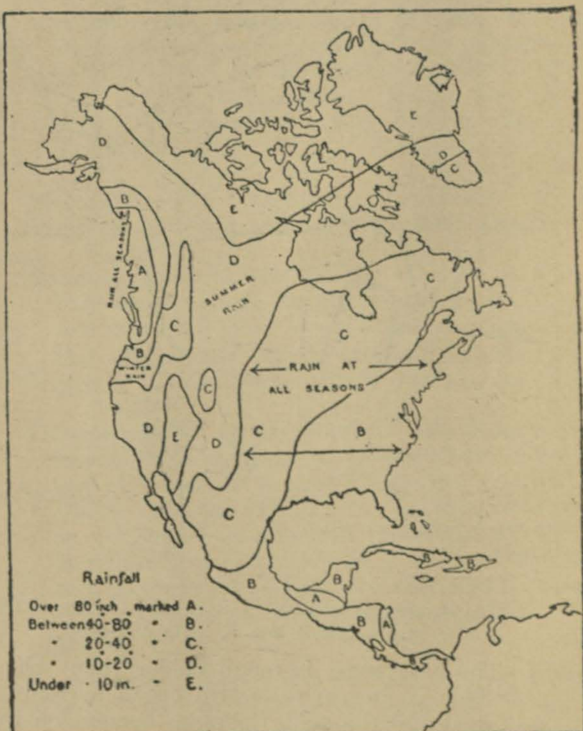


FIG. 64. Rainfall Map of North America.

(*ii*) The plateaus between the coastal ranges and the main line of the Rocky Mountains have

very little rainfall, being situated in the rain-shadow area. The famous Chinook winds are dry and hot winds descending on the leeward side of the mountains. This area is more suitable for cattle rearing than for agriculture.

(*iii*) The east coast has rain throughout the year but the rainfall decreases as we go inwards towards the centre of the continent. In the central part the rainfall is mainly in summer.

(*iv*) The West Indies and Central America receive a well-distributed rainfall throughout the year.

Vegetation.—The vegetation of North America coincides with Climatic Zones. All types of vegetation except the Monsoon type are found in North and Central America combined. The following are the chief climatic-vegetation zones:—

1. *The Tundra* is a cold desert in the north within the Arctic Circle and northern parts of Labrador. The vegetation consists of berries, mosses and lichens.

2. *The Coniferous Forests*, below the Tundra, stretch right across the continent. The trees are spruce, balsam, fir and pine. The wood is used for making paper-pulp.

3. *The Temperate Grasslands or Prairies.*—These are found in the interior plains which have moderate rainfall and that too in summer. The grass is used for cattle rearing.

4. *The Desert and Semi-desert* region is at the head of Gulf of California and includes also large areas of the Plateau of Mexico.

5. *The Mediterranean Type* of vegetation is found in a small area on the Pacific coast. Oak is the chief tree.

6. *The St. Lawrence Type* occupies north-eastern United States. These forests are of great

economic importance. The chief trees are oak, elm, maple and chestnut. The wood is hard and is used in making furniture, carriages and tools. Tar, turpentine and resin are also obtained from these trees.

7. *Warm Temperate Forests* occupy the region north of the Gulf of Mexico. Broad-leaved trees are found here.

8. *The Tropical Forests* occupy Central America and the West Indies. The chief vegetation is rubber, ebony, and mahogany.

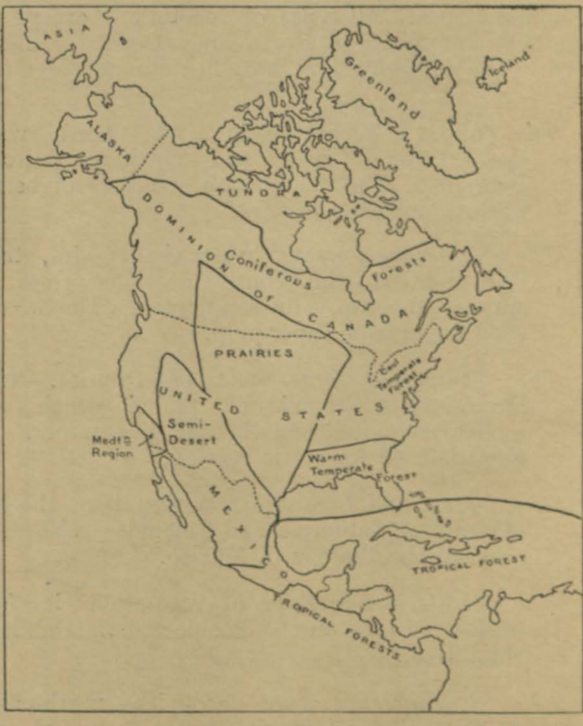


FIG. 65. Climatic Vegetation Zones in North America.

Animals.—The *Tundras* have reindeer and musk-ox as the chief animals.

The *Coniferous forests* are important for fur-bearing animals, chiefly the fox, beaver, sable, ermine and mink. The brown bear is found in the forests of the Rockies.

The *Tropical forests* are rich in animals, birds, snakes and alligators.

The *Grasslands* have domesticated animals; in the drier parts cattle roam as semi-wild animals. Horses, cattle and sheep are reared.

People.—The northern cold regions are inhabited by the Eskimos who on account of the severity of climate live in tents made of skins; their chief food is fish. "Red Indians" is a name applied to the former inhabitants of North and South America at the time it was discovered by Columbus. They are cruel and treacherous. Their chief occupation is hunting, fishing and growing corn and tobacco. The Red Indians mostly live in certain reserved areas controlled by the Government but some of them roam about. Negroes were imported from Africa to carry out manual work; their numbers have increased. They form about 10 per cent. of the population of the United States.

Amongst the early settlers, the Spaniards settled in Mexico and Central America, the French in the basins of the Mississippi and St. Lawrence, and the English along the east coast.

The present population consists of the above and a number of mixed races. There are also a few Indian (mostly Sikhs), Chinese and Japanese.

CHAPTER LIII

BRITISH NORTH AMERICA

The Dominion of Canada is divided into ten provinces; each province has a Legislative Assembly and is governed by a Lieutenant Governor. Newfoundland, with Labrador has a separate government. The Bermudas Islands which form part of British North America will be discussed at a later stage. The North West Territories are undeveloped.

Surface Features.—As regards surface features Canada may be divided into the following divisions:

1. **Eastern Canada** includes the following:—

   (a) *The Laurentian Shield* consisting of metamorphic rocks in the north-east. This region has many valleys and lakes. The soil is poor. The chief minerals are silver, copper, gold, iron, cobalt and nickel.

   (b) *The St. Lawrence Lowlands* are very densely populated on account of rich soil and good climate. The chief crops are oats, barley, wheat, rye and potatoes; fruits *e.g.*, apples, plums and pears are also grown. Dairy farming is an important occupation.

   (c) *The Maritime Provinces* include the hilly region which forms an extension of the Appalachian mountains. This region is noted for coal-fields and is densely populated. The chief occupations are cattle rearing, breeding of foxes for furs, and fishing.

2. **The Central Plains.**—These include the Prairies of Canada. This region is very fertile and is noted for the cultivation of wheat. The winters are long and bright, and the rainfall is moderate.

Agriculture and cattle and sheep rearing are the chief occupations.

3. **The Western Cordillera,** with the Rocky Mountains on the east and the Coast Range on the west occupy dry plateaus. The mountains are forested. The region is rich in minerals *e.g.*, copper, silver, lead, zinc, gold and coal. Fruits like apples, pears, cherries and plums are grown in sheltered valleys. The Pacific Coast has important fisheries.

4. **The Arctic Region** remains frozen for a greater part of the year. The lower basin of the Mackenzie has oil deposits.

Vegetation.—The natural vegetation of Canada consists of hard and soft wood forests and of grasslands. Lumbering is an important industry. The forest products consist of paper, paper pulp and turpentine etc.

Agriculture.—Agriculture and cattle rearing are the chief occupations of Canada.

The chief crops are wheat, oats, barley, rye, potatoes, mixed grains, beet root and tobacco. Fruits of different varieties are extensively grown.

Animals.—Dairy farming is rapidly increasing and there is a large output of butter and cheese on account of the large number of cows and sheep fed on the grasslands. Poultry and pigs are increasing and thus there is a large production of bacon and eggs.

The fisheries of Canada are well-known and are extensive The catch includes both coastal and deep-sea fish. The chief kinds of fish are cod, haddock, herring, lobster, and salmon.

Minerals.—Canada is very rich in minerals. There are extensive deposits of coal, asbestos, cobalt nickel, gold, lead, copper, silver and zinc.

Gold, silver and lead are mined in British Columbia. Coal is found in the foot hills of the Rockies; there are vast fields in the Prairies provinces.

The raw materials for cement are found in the St. Lawrence lowlands.

Manufactures.—The chief manufactures are the dairy products, paper, pulp, flour-milling, fruit and meat packing. Rubber, cotton and woollen goods are manufactured from imported raw materials. **The Niagara Falls** are an enormous source of power. Electricity is used in driving machinery, and to supply heat.

Communications.—The Great Lakes and St. Lawrence form important waterways. The Canadian Pacific Railway joins Halifax with Vancouver passing through most important towns of the central plains; the Rockies are crossed at Kicking Horse Pass and at Roger's Pass. A new trans-continental line runs from Moncton *via* Winnipeg to Prince Rupert, a new port on the Pacific nearer to China and Japan than Vancouver.

Trade.—The chief exports are wheat, flour, dairy products, wood, paper, pulp, fish, and motor cars.

The chief imports are sugar, tea, iron and steel, petroleum; raw cotton, chemicals and rubber; cotton, woollen and silk goods.

The great bulk of the trade is with the United States and Great Britain in both exports and imports.

Towns.—(a) *In the Lawrentian Shield.*—

SUDBURY, north of Lake Huron, on the main line of the Canadian Pacific Railway is noted for nickel and copper mines.

(b) *In the St. Lawrence Lowlands.* (Quebec and Ontario).—

QUEBEC on the lower St. Lawrence, commands the river but it has lost its importance because of the growth of Montreal on account of the deepening of the river to Montreal. It is a summer port and manufactures boots and shoes.

MONTREAL is the largest city and the chief grain port of Canada. It is the meeting point of many railway and water routes and is the farthest point reached by large ships. The St. Lawrence has been deepened between Quebec and Montreal, which is a great trade centre and is also developing as a manufacturing town specially in steel goods and motor cars. It is the meeting place of routes from Ottawa and New York.

OTTAWA, the capital of Canada, is a lumbering centre and manufactures paper and pulp. It is a beautiful city with fine buildings.

TORONTO, on Lake Ontario, has an excellent harbour and is the centre of many railway and steamer routes. It manufactures biscuits, agricultural tools; ship-building is an important industry.

HAMILTON is an important lake port and a railway centre especially for the United States.

(c) *In the Maritime Provinces* (Nova Scotia, New Brunswick and Prince Edward Island).—

HALIFAX, has a good harbour and is ice-free in winter. It is a naval station and terminus of trans-continental railways.

SYDNEY near the coal-fields, manufactures iron and steel goods.

ST. JOHN is an ice-free winter port and railway terminus.

(d) *In the central plains of the Prairies* (Manitoba, Saskachewan and Alberta).—

WINNIPEG has grown recently as a great wheat centre. It is also a great railway centre, lines radiating in all

directions to take the grain. Its chief industries are flour-milling and manufacture of agricultural tools.

REGINA, SASKATOON, PRINCE ALBERT and EDMONTON are growing railway and agricultural centres.

CALGARY is a centre for wheat and cattle rearing.

(e) *In the Western Cordillera and the Pacific Coast* (Yukon and British Columbia).—

DAWSON CITY in the Yukon valley is a mining centre.

VANCOUVER has an excellent natural harbour, and is a railway terminus. It is important on account of trade with China, Japan and Australia, and for trade through the Panama Canal. Being at the mouth of the river Fraser it exports wheat, timber and fish.

PRINCE RUPERT and NEW WESTMINSTER are important fishing and fruit canning centres.

VICTORIA on Vancouver Island guards the entrance to Vancouver and Seattle (U.S.A). It has a good harbour and exports timber and fur.

ESQUIMAULT is a naval and coaling port.

Newfoundland.—Newfoundland with the coastal lands of Labrador forms a separate Dominion. Newfoundland is a continuation of the Appalachian system.

The interior part is a low plateau which is well forested. Paper pulp is prepared from the wood. The chief occupation is fishing; cod and herring are the most important catch. Seal-catching is important along the coast of Labrador in spring.

The Grand Banks of Newfoundland are covered with fogs on account of the mixing of cold air from the Labrador Current and the warm air from the Gulf Stream.

Iron is mined in Belle Isle. The chief crops are potatoes and turnips.

ST. JOHNS, the capital is a fishing centre.

CHAPTER LIV

THE UNITED STATES

The United States of America comprise 48 Republic States each under an elected Governor and the United States under a President, who holds office for four years. The Governors of Hawaii and Alaska are nominated by the President.

Surface Features and natural Regions:—In the United States there are three great physiographic divisions which can be subdivided:—

1. **The Eastern Highlands:**—

(a) *The Northern Appalachians.*—The land has irregular coasts with good harbours. The presence of lakes and waterfalls shows that this region was formed by the sinking of the Northern Appalachians. Agriculture consists of fruit growing and production of vegetables, milk and cheese etc. There is no coal or iron but it is a manufacturing area as water-power is plentiful. The chief manufactures are cotton, wool, leather and iron goods, boots and shoes, and paper.

(b) *The Southern Appalachians* separated from the above by the Hudson River. It also includes the deeply indented coast of the Atlantic. This region is very rich in coal, hence it is a manufacturing area. Cotton, woollen and silk goods are manufactured. The rivers on leaving the mountains enter the coastal plain and make waterfalls, thus producing water-power. The pine grows on the sandy belts and rice is cultivated in the deltas of the rivers.

2. **The Central Lowlands:**—In the north there are a few forests, and lower down the Prairies. Wheat is the chief crop of the Prairies region. Below this, the temperature and rainfall increase giving rise to the Maize or Corn Belt. The Cotton Belt lies round the Gulf.

(a) *The Wheat Belt*, includes the Basin of the Upper Mississippi and the land south of the Great Lakes. Wheat, oats and barley are the chief crops.

(b) *The Maize or Corn Belt* lies just below the Wheat Belt. Apart from maize, other crops are wheat, oats, barley and tobacco. Cattle and pigs are reared; meat is sent to other parts of the country. This region is rich in coal, and petroleum. Hence the chief occupations are agriculture, slaughtering of animals and manufactures.

(c) *The Cotton Belt* includes the lowlying plains around the Gulf of Mexico. Cotton is an inland crop and rice grows on the coastal lands which also give hard timber.

3. **The Western Highlands:**—

(a) *The Columbia-Snake Basin.*—The valley of Columbia receives rain throughout the year; the Snake valley has no rainfall and consists of a plateau made of lava. The upper valley of the Columbia is noted for timber and salmon fish, the lower valley for fruit and wheat. There are many hot springs, extinct volcanoes, lakes and waterfalls in this region.

(b) *The Great Basin* is situated east of the Sierra Nevadas. It is a desert region of inland drainage. The Great Salt Lake lies in the centre and contains much salt and other mineral matter.

(c) *The Colorado Plateau* is a dry region famous for the great gorge or canyon of the Colorado river.

(d) *The Californian Valley* or the Mediterranean Region, includes the valleys of the Sacramento and the San Joaquin rivers. Mediterranean fruits are grown and exported.

Climate.—The predominating factors have been discussed in the climate of the North America (page 290).

The Eastern Provinces have the St. Lawrence type of climate. The Gulf Provinces are affected by the hot currents of the Gulf and have a Warm Temperate Oceanic type of climate. The Central Plains have a temperate climate. The Plateaus are dry and arid. The northern Pacific coasts have rain throughout the year and the southern in winter only.

Vegetation.—The natural vegetation consists of forests, grasslands and semi-deserts. The chief trees are fir, pine, beech, birch, oak, chestnut and hemlok. Lumbering is an important occupation in forest regions. The chief forest products are paper, pulp, turpentine, resin, tar, and tanning bark. The well-known Prairies occupy the central low-lands.

Agriculture.—The chief crops are wheat, corn, oats, cotton, rye, barley, rice, millets, sugar-cane, tobacco, beans, groundnuts and fruits like oranges, lemons, and grapes etc. Hay is the winter food for cattle.

Animals.—The chief animals are cattle, pigs, sheep and poultry . The associated industries are dairy products and meat-packing.

Fisheries of the United States are very important. The chief areas are near Alaska, the Columbia River in the Pacific, and along the North Atlantic coasts.

Minerals.—The United States is very rich in minerals. There are extensive deposits of coal which is of high quality

and is easily mined. Petroleum oil and iron ore are abundant. Other minerals in order of their importance are copper, gold, silver, lead, zinc, aluminium, pottery clay, cement, salt, sulphur, marble and phosphate-manure.

The Fall Line.—The eastern rivers on leaving the east ridge of the Appalachians enter upon a soft rock and produce waterfalls. These falls are in a continuous line known as the Fall Line. Many manufacturing cities are situated on this Fall Line.

Manufactures.—The United States is a leading manufacturing country in the world. This is due to (*i*) local supplies of coal, iron and other metals, (*ii*) cheap water-power, (*iii*) large home market and (*iv*) well-developed means of transport.

The chief manufactures are meat products, iron and steel goods, motor cars, machinery, and cotton goods.

Communications.—The Great Lakes have heavy shipping. The Mississippi and its tributaries are navigable. The railway system is very extensive and most elaborate as the standard gauge is used throughout.

Trade.—The chief exports are raw cotton, oil, tobacco, coal, meat, dairy-products, wheat, iron and steel goods, motor cars, cotton goods, and wood.

The chief imports are rubber, cane-sugar, coffee etc.—tropical products not produced in the United States; silk, furs, tobacco. vegetable oil, tin and diamonds.

Towns.—(a) *Eastern Highlands and Coastal Plain.*—

NEW YORK is the second largest city in the world and the most important port of America. It has an ice-free natural harbour. It occupies a splendid position having easy communication with the Central Plains, the Great Lakes and the St. Lawrence by canals and railways.

The chief industries are manufacture of iron goods, clothing, and printing books.

Boston, in the Northern Appalachians has an excellent harbour. It manufactures clothes and shoes and exports meat and grain from the Central Plains.

Fall River, has a deep harbour. It manufactures cotton and woollen goods; the power is derived from waterfalls.

Yale and Harvard are important University towns.

Philadelphia, a port on the Delaware River on the Fall Line, is near the coal-fields and manufactures machinery, railway engines and builds ships.

Baltimore on the Fall Line manufactures cotton and iron goods.

WASHINGTON, the capital of the United States, is noted for its fine buildings.

Richmond on the Fall Line exports tobacco, maize and wheat.

(b) *The Central Plains.*—

Minneapolis, at the navigation limit of the Mississippi, derives power from St. Anthony Falls and is the chief milling and lumbering centre.

Duluth is in the centre of timber, iron and wheat producing areas which form the chief exports.

Cleveland, on Lake Erie, manufactures iron and steel goods, builds steamers and refines oils and has a considerable trade in grain and timber.

Detroit between Lakes Huron and Erie is on the routes to Canada.

Chicago on Lake Michigan commands the routes to the basin of the Mississippi and the Great Lakes. It is chiefly a grain port; it has many slaughter houses and exports meat.

PITTSBURG is noted for iron and steel works on account of nearness to coal, iron and oil fields.

CINCINNATI on the Ohio is a manufacturing town, noted for iron, wood and leather goods.

NEW ORLEANS on the Mississippi is the southern gateway of the central plains and a railway centre. It is the largest cotton-exporting port.

GALVESTON and CHARLESTON export cotton and timber.

BIRMINGHAM is growing in the manufatcure of iron, steel and cotton goods.

KEY WEST is a naval station and manufactures cigars and cigarettes from tobacco imported from Cuba.

KANSAS CITY and OMAHA on the Missouri are cattle-rearing centres; their chief trade is packing meat etc.

(c) *The Western Highlands and the Pacific Coast.*—

PORTLAND (over 100 miles from the mouth of the Columbia), SEATTLE and TACOMA are important ports trading in wheat, timber, wool, tinned fruits, and salmon-fish.

SALT LAKE CITY is growing in importance on account of new schemes of irrigation and the discovery of minerals.

SAN FRANCISCO, the largest port on the Pacific coast, has an excellent natural harbour and since the opening of the Panama Canal has become more important still. It is connected with railways with all parts of U.S.A It is also noted for flour-milling, woollen manufactures and ship-building.

LOS ANGELES is noted for mineral oil, fruit and wheat. On account of its fine climate, it is the centre of the Cinema industry.

DENVER is the centre of mining areas; gold, copper, silver and lead are found in the neighbourhood; hence it is a smelting centre.

Alaska.—It was bought from Russia in 1867. Salmon-fish is abundant along the coast; whales and seals are also caught. Alaska is rich in gold, silver and copper. Lumbering is likely to develop in near future; reindeer is the chief animal.

NOME is the chief port near the chief mines.

CHAPTER LV

MEXICO

Mexico was a Spanish colony from 1521 to 1822 but is a republic now with unsettled conditions. The country is not advanced. Old methods are used for agriculture. Most of the mines belong to foreigners. The population consists mostly of American Indians and mixed races descended from Spanish settlers; there are very few white people.

Surface Features.—Mexico is a continuation of the western plateaus of the United States. It has a coastal plain on either side; Yucatan peninsula is in the south east and Lower California on the west. In the south there is a volcanic range running from west to east; there are two large volcanos *viz.* Orizaba and Popocatepetl.

Natural Regions.—Mexico may be divided into the following natural regions as regards surface, climate and productions.—

1. *The Plateau* has very little rainfall. Cattle and sheep rearing are the chief industries. The chief crops are cotton, wheat, maize and beans by irrigation.

2. *The Hill Slopes* are cooler and have a good rainfall. The chief crops are maize, coffee and tobacco.

3. *The Coast-lands* have heavy rainfall; the east coast being in the track of the North East Trade Winds receives more rainfall than the west coast. The climate is hot in winter and very hot in summer. The chief crops are rubber, cane-sugar, vanilla and tobacco. Bananas, pine-apples, palms and mahogany also grow abundantly.

Minerals.—Mexico is very rich in minerals. Half the world's silver is mined in Mexico. There are extensive

deposits of copper, iron and coal, petroleum oil and lead. Water-power is available but there are very few manufactures due to unsettled conditions and revolutions.

Towns.—MEXICO CITY is the capital and largest town. It is near the important silver mines.

TAMPICO is an oil port on the east coast.

VERA CRUZ is another Atlantic port, manufacturnig cotton goods.

MAZATLAN and ACAPULCO are Pacific ports with good harbours.

CHAPTER LVI

CENTRAL AMERICA

Central America includes six republics of Guatemala. Salvador, Honduras, Nicaragua, Costa Rica, Panama and the British Colony of Honduras.

Surface Features.—Central America extends from the Isthmus of Tehuantepec to the Isthmus of Panama. Central America is in many respects connected with the West Indies. They, in ancient times formed a continent and Central America and the West Indies are the remains; the depression was filled by the Caribbean Sea.

There are four narrow points in Central America which are of great commercial value for the construction of railway lines and canals to connect the Atlantic and Pacific Oceans.

Climate and Vegetation.—Central America lies between the Tropic of Cancer and the Equator. It is under the influence of the North-East Trade Winds.

There are three natural belts as in Mexico.—

1. *The Coast-lands* have heavy rainfall, the east coast receiving much more than the west coast. The plains are unhealthy and malarial. The chief products are rubber, mahogany and logwood. Cocoa, bananas, and pine-apple are cultivated.

2. *Hill Slopes* are wetter on the east than on the west. The chief product is coffee.

3. *Highlands* are cool and covered with grass. Cattle-rearing is the chief occupation.

Towns.—BELIZE is the chief port with a good harbour.

GUATEMALA, SAN SALVADOR and MANGUA (in Nicaragua) are large cities and capital towns.

The Panama Canal.—The Panama Canal was constructed by the United States who bought a strip of land 10 miles wide from Panama. It belongs to U.S.A. but is used by all nations.

It is 36 miles long but for a greater part runs through an artificial lake (Gatun Lake). It is not a sea-level canal, as the surrounding country has many ridges.

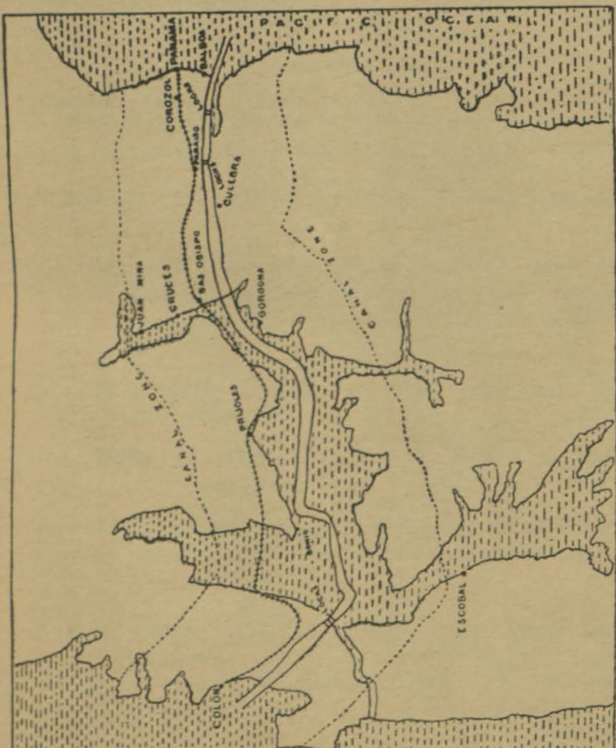


FIG. 66. The Panama Canal.

Colon is at the Atlantic end and Panama at the Pacific end. Ships ascend by three locks near Colon and descend by three locks near Panama.

The Panama Canal is of great importance to the United States to allow ships to ply between east and west coast. It also brings the west coast of North and South America much nearer to Europe and offers an alternative route to Australia and New Zealand.

CHAPTER LVII

THE WEST INDIES

The West Indies include a large number of islands lying within the Tropics. They are of great commercial importance.

Climate.—The climate is equable. Most of the rain falls in summer. The prevailing winds are the North-East Trades.

Vegetation.—These islands are rich in tropical products. The chief are bananas, fruits, coconuts, pine-apples, palms, sugar-cane, cocoa, coffee, tobacco and spices.

Divisions.—1. *The Greater Antilles* include the following:—

(*i*) **Cuba** is a republic subordinate to the United States. The chief products are sugar-cane and tobacco. HAVANA is the chief port and capital.

(*ii*) **Porto Rico** (U.S.A.) produces sugar-cane, tobacco and coffee.

(*iii*) **Haiti** or Hispaniola is a Negro republic in backward condition.

(*iv*) **Jamaica** (British) is famous for sugar-cane and bananas. The ports are KINGSTON and PORT ANTONIA.

2. *The Lesser Antilles* stretch from Porto Rico to Trinidad. The eastern group is made of limestone and the western group is of volcanic origin.

3. *The Bahamas* include a very large number of coral islands.

The Bermudas are coral islands not strictly belonging to the West Indies. They belong to the British.

The climate is excellent,—winters are moderate due to the Gulf Stream and summers not very hot due to the influence of the sea. They are used as health resorts. The chief crops are onions and potatoes.

HAMILTON is the capital and ST. GEORGE a naval station; both have good harbours.

QUESTIONS ON SECTION III.

1. How do you account for the contrast in the climate of East and West Canada?

2. What are the chief cotton, wheat and corn areas in North America? Point out any special advantages of the soil and climate of the areas in question.

3. Describe the rivers of North America which are natural traffic routes.

4. Estimate the importance of the West Indies to (*a*) Great Britain and the British Empire (*b*) the United States.

5. Which are the most densely populated parts of North America and why?

6. Give a short account of the fishing centres of North America. What advantages have these centres for developing this industry?

7. The countries of Central America are called backward countries. What geographical conditions account for this backwardness?

8. Briefly indicate the general distribution of minerals in Canada and the United States. Discuss the effect of the distribution on population and occupations.

9. A man with a small boat can cross Canada and will have to walk in only two places. Draw a sketch of his route with the help of your Atlas.

10. Describe briefly the Trans-continental railways of Canada and the United States.

11. North America has different types of coast line. What are these and where do they occur?

12. Write short notes on.—

(*a*) The Niagara Falls.

(*b*) The Panama Canal.

(*c*) The Mississippi Basin.

(*d*) The Great Ice Age.

(*e*) The Fall Line.

(*f*) The "Soo" Canals.

13. Describe the chief fruit-growing areas of North America. What causes have contributed to the development of this industry?

14. Account for the development of meat-packing industry in the United States. Indicate the centres of this industry.

15. Write a short account of (*a*) the Prairies, (*b*) the Forests of North America. Describe the main products of each.

PART III

—:o:—

REGIONAL GEOGRAPHY
OF THE
SOUTHERN CONTINENTS

PART III.

CHAPTER LVIII

GENERAL SURVEY

The three continents, South America, Africa and Australia, are mostly below the Equator and they have many interesting features to present. They are noted for their dense tropical forests, mighty rivers, great mountain systems and vast deserts. They are all new continents, in as much as their wealth is now being explored. Australia is an island continent, lying entirely south of the Equator. South America has four-fifths of its area south of the Equator. The Equator cuts Africa into two parts. The bigger part is north of the Equator. Only Africa is cut by the Tropic of Cancer. The Tropic of Capricorn cuts all the three.

South America has the greatest river of the world, the longest mountain range in the world and the greatest forest in the world. Africa, which is also known as the "Dark Continent" contains the greatest desert in the world. Australia was formerly used as convicts' settlement, but now has grown to be important on account of the discovery of gold and of its modern cultivation of wheat, orchards and sheep-farms. There are also many precious stones in Australia.

The Southern Continents do not stretch towards the Polar ice as the Northern Continents do. South America does not go far into the Ice Regions. Its southern point is as far from the Equator as the north of Scotland is from the Equator. Cape Town in Africa is nearer the Equator than Gibraltar. The extreme south of Australia is about the same distance from the Equator as Spain is from the Equator.

Africa and South America taper towards the south. Africa tapers gradually, South America rapidly. The coast-

line of all the three continents is not broken, hence we observe that there are very few peninsulas, gulfs and inland seas.

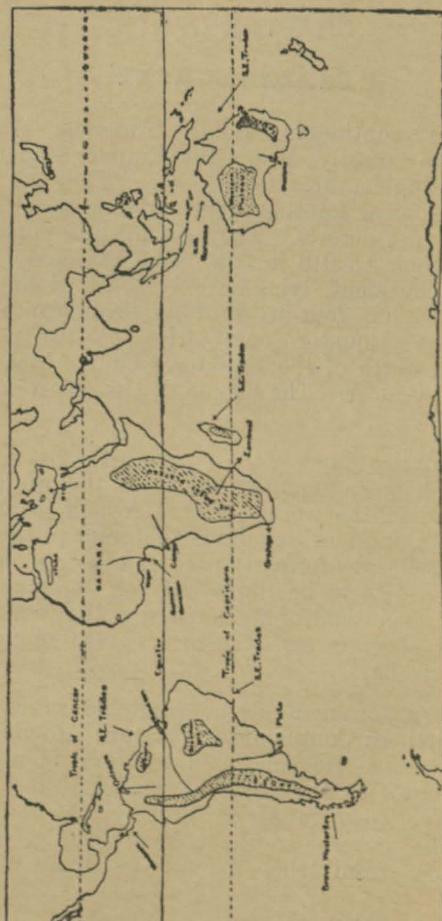


FIG. 67. The Southern Continents.

South America has the great western mountain chain, the Andes and two table-lands in the east separated by a broad valley. In Africa there are few mountain ranges, but the whole of the continent is a great table-land, especially the southern half. The only mountain of any importance is the Atlas in the north. Australia has a mountain system near the coast in the east; more than half of the continent consists of table-lands separated by the rivers.

Examine a map of the world. The southern continents lie a little further to the east than those with which they are closely associated on the north. South America lies to the south-east of North America, South Africa to the south-east of North Africa, and Australia to the south-east of Asia. The southern lands have, therefore, been wrenched a little to the east of their original positions.

Observe also that an island, or a group of islands occurs near the extremity of each of the southern land masses; these islands are situated a little to the east. Tierra del Fuego is thus associated with South America, Madgascar with Africa. Ceylon with India and Tasmania with Australia.

We must remember that the seasons, south of the Equator, are opposite of ours. When we speak of summer in the southern hemisphere, then we have the winter months of December, January and February. Their winter months are our summer months of June, July and August. In the tropical parts of the southern continents there are only two seasons and not four. They have the wet season and the dry season instead of our spring, summer, autumn and winter. There are four seasons in the very south of these continents and in the very north of Africa, but their summers are much hotter and winters much milder.

SECTION I—SOUTH AMERICA

CHAPTER LIX

PHYSICAL FEATURES

South America has a very short coast-line. This is due to the absence of peninsulas. It is twice as large as Europe, but its coast-line is three-fourths that of Europe.

South America resembles North America in the following respects:—

(*i*) Both continents are broad in the north and taper towards the south. They are triangular in shape.

(*ii*) The mountain ranges are in the west of each continent.

(*iii*) In both the continents there are high table-lands and these table-lands are lower than the western high-lands.

(*iv*) The central part of each continent is occupied by plains.

(*v*) In each continent the rivers flow northward, eastward and southward.

South America differs from North America in the following respects:—

(*i*) In South America there is no river flowing into the Pacific.

(*ii*) In South America there are no large openings like the Hudson Bay. There are also no long gulfs or peninsulas.

(*iii*) South America is broadest where it is hottest. North America is broadest where it is coldest.

(*iv*) The general elevation of South America is greater than that of North America.

(*v*) The eastern table-lands of South America are unfolded rocks. The eastern table-lands of North America are folded mountains.

Surface Features.—As regards surface features, South America can be divided into the following four regions:—

(*i*) The western mountain system of the Andes. The ranges in the north are separated by river valleys. The lower range is broad and includes a plateau.

(*ii*) There is a narrow coastal plain bordering the Pacific Ocean.

(*iii*) The central plain which may be divided into the following classes.

(*a*) Argentine Pampas and Patagonia.

(*b*) The basin of the Parana-Paraguay rivers.

(*c*) The Amazon basin which consists of the Equatorial forest.

(*d*) The Orinoco basin or the grassy plains known as Llanos

(*iv*) The eastern table-land separated by the Amazon river. The table-land consists of (*a*) Venezuela and Guiana in the north and (*b*) the eastern Brazil in the south.

Rivers.—The rivers of South America are of great importance as highways. The Cauca, Magdalena and Orinoco are navigable rivers. The Amazon and its tributaries are navigable up to one thousand miles from its mouth, *i.e.*, steamers can reach the foot hills of the Andes. The Amazon is the largest river of the world and receives a very large number of tributaries. It rises in the

Andes and flows through Brazil and falls into the Atlantic. The volume of water is the largest in the world. It may be compared to the Congo of Africa.

The Orinoco rises south of Guiana table-lands and falls into the Atlantic Ocean after receiving many tributaries from the Andes. The Parana-Paraguay system of rivers is navigable as far as Asuncion. The Parana rises in the Brazil highlands and flows southward when it receives Paraguay which rises on the western slopes.

Minerals.—South America is well-known for its mineral wealth. The eastern plateaus are very rich in minerals. The chief minerals obtained are gold, diamond, iron-ore and copper. In the Andes ranges the chief minerals obtained are silver, copper, tin, etc.

There are also important oil-fields in the western mountains in Argentina, Peru, Colombia and Venezuela; but there are very few deposits of coal in South America. Northern Chile is noted for the deposits of nitrates.

CHAPTER LX

CLIMATE AND VEGETATION

The chief factors which determine the climate of South America are rainfall, altitude and nearness to the sea shore.

Rainfall.—The higher temperatures are observed in the broadest part of South America. The region of the greatest heat is farther south in January than in July. The prevailing winds are South-East Trade Winds and North-East Trade Winds in the north of 30° latitude, and Westerlies in the south of 30°. Observe that:—

1. The Equatorial regions have rainfall throughout the year.

2. The extreme north of South America gets rain in summer.

3. The Pampas and the highlands of Brazil get rain in southern summer.

4. Central Chile gets rain in winter.

5. Southern Chile gets rain throughout the year.

6. There are two rainless areas: (*a*) North of central Chile extending up to the Gulf of Guayaquil, (*b*) from the Bolivian table-land to the eastern slopes of Southern Andes.

The heaviest rainfall is in the Amazon valley. The reason for this is that the North East and South East Trade Winds pass over large oceans, they therefore contain a good deal of moisture. These heavily-laden

winds strike against the highlands, and the wind-ward slopes receive heavy rainfall. The Andes acts as a great barrier.

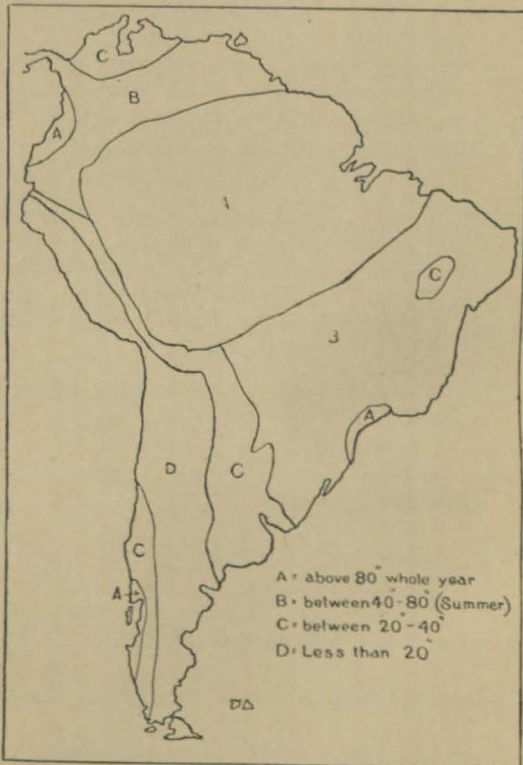


FIG. 68. South America.—Rainfall.

Climate.—The Climate is determined mostly by the physical features of South America. In January the sun is shining over the tropic of Capricorn, hence the greatest insulation is received by the southern part of the Amazon low-land. The western coast is cooler than the eastern

coast. In July the northern portion of the continent receives the greatest amount of heat. The rainfall on the north-west coast is due to a local Monsoon.

Vegetation.—The vegetation depends upon climate. The following are the chief vegetation zones:—

1. The **Llanos** occupy the lower basin of the Orinoco as explained above. The rainfall is in summer, therefore there is good pasture for cattle. The chief products on the coast lines are sugar, coffee and cocoa.

2. The **Selvas** occupy the entire valley of the Amazon. These lowlands are hot and have a heavy rainfall throughout the year; this gives rise to dense Equatorial forests. These forests extend up to north-east and north-west coasts. The eastern slopes of the Andes receive heavy rain-fall, but the forests are not rich. These forests of the Andes are known as *Montana*. The trees of the Selvas are tall. The chief animals found in this region are like monkeys, lizards, etc. which are adapted to climbing and life in trees. The chief products are rubber, mahogany, log-wood and banana. Coffee, sugar and tobacco are cultivated in lands which have been cleared.

3. The **Pampas** are grass-lands found in the Plate lowland. They are very similar to the Prairies of North America and the Steppes of Russia. This region has a temperate climate and moderate rainfall; it therefore provides pastures for sheep, cattle and horses. The Pampas occupy a semi-circle with Buenos Aires as centre. The Pampas are very rich because of the absence of frost in winter. The soil also is rich. The chief products of north-east portion of this region are wheat, maize, tobacco and sugar.

4. Patagonia, Northern Chile and Peruvian coasts are barren so far as vegetation is concerned.

5. Middle Chile has a Mediterranean type of climate and produces wheat, fruits and wool.



FIG. 69. Economic Map of South America.

Animals.—The chief animals of South America are the Alpaca and the Llama; both are used as beasts of burden and yield wool which is used for clothes.

People.—The original inhabitants were highly civilized. The present inhabitants are descended mostly from the explorers from Spain and Portugal. The chief language is Spanish; Portuguese is spoken in Brazil. With the exception of British, French and Dutch Guiana, all the countries of South America are independent republics. The most thickly populated areas are (*a*) the coastal lands of eastern highlands, (*b*) the state of Argentina, and (*c*) the Mediterranean region near the south.

CHAPTER LXI

NATURAL REGIONS

South America may be divided into the following natural regions.—

A. The Western Mountains and their Slopes:—

1. The North Andean or Colombian Region.
2. The Peruvian and Bolivian Table-land.
3. The West Coast Desert.
4. The Mediterranean Chile.
5. Southern Chile.

B. The Highland Regions:—

6. The Guiana Highland.
7. The Brazilian Highland.

C. The Lowland Regions:—

8. The Amazon Basin.
9. The Orinoco Lowland.
10. The Plate Lowlands.
11. The Patagonian Desert.

1. The North Andean or Colombian Region

The coastal lands are hot and receive heavy rainfall. The chief products are cocoa, sugar, tobacco, rice and coffee. *The higher lands* are temperate and cool. The chief products are wheat and maize. Stock farming is the chief occupation on the higher plateau. In the Montana region, cocoa and cinchona are cultivated.

Minerals.—The chief minerals are gold and silver.

Towns.—BAGOTA is the capital of Colombia and QUITO the capital of Ecuador. They are near the Equator but on account of their altitude enjoy a temperate climate. The chief ports are CARTAGENA, BARRANQUILLA, MARACAIBO and LA GUAIRA. These ports have become more important since the opening of the Panama Canal.

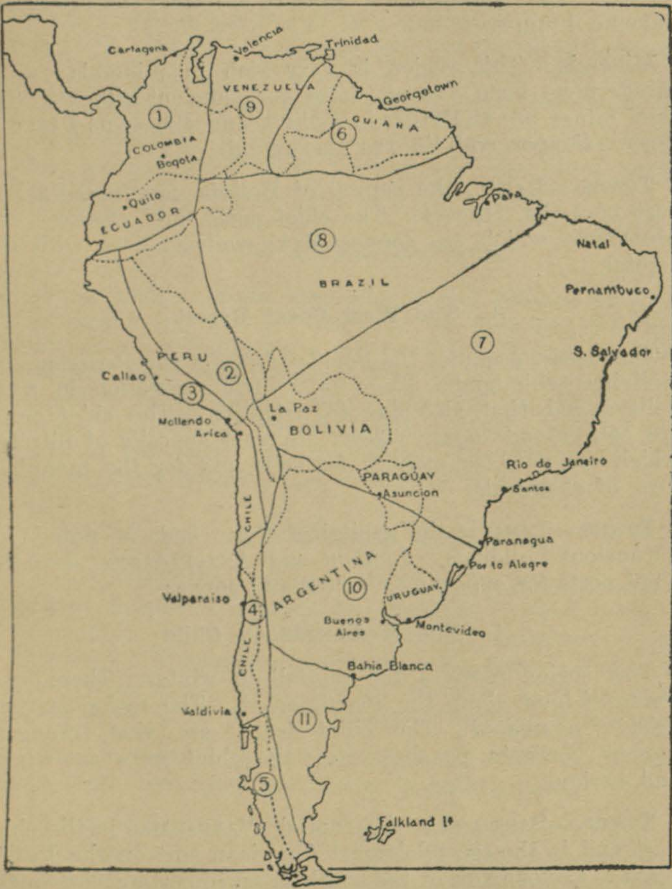


FIG. 70. Natural Regions and Political Divisions of South America.

2. The Peruvian and Bolivian Tableland

This tableland is like Tibet. There are many lakes and rivers of inland drainage. The rainfall is very small. The chief occupation of the people is the rearing of cattle. The chief animals are cattle, sheep, llamas and alpacas. The wool of these animals is used for making clothes and is exported. The llama and alpaca are like the camel but have no humps.

Minerals.—This region is very rich in minerals; silver mines have been famous from very ancient times. The chief mines are at POTOSI in Bolivia and CERRO-DE-PASCO in Peru. Copper and tin are also found.

Towns.—LAPAZ, the capital of Bolivia, is situated south-east of Lake Titicaca. The chief ports are CALLAO and MOLLENDO which are connected by railway lines with the capital.

3. The West Coast Desert

This desert occupies the Pacific slopes of the Peruvian and Bolivian table-land. There is a little vegetation in river valleys and that also due to irrigation. The chief crops are cotton and sugar. There are vast deposits of nitrates which are used as manure for soils and for the manufacture of chemicals.

Towns.—LIMA is the capital of Peru and is noted for its ancient buildings. IQUIQUE and ANTOFAGASTA are the chief ports for exporting nitrates and copper.

4. The Mediterranean Chile

This region receives the rainfall in winter. There is a string of land along the Pacific coast. The region is very thickly populated. The chief fruits are vine, oranges, lemons, apricots, peaches, etc.; the chief crops are wheat and barley.

Towns.—SANTIAGO is the capital. VALPARAISO is the chief port and is the second largest American port on the Pacific coast. CONCEPTION in the south is an important port in the vicinity of coal-fields.

5. The Southern Chile

This part of Chile is very little developed; timber, especially pine, is cultivated. The rainfall is very heavy.

Town.—VALDIVIA is the only important town and port.

Islands.—*Chiloe* off the west coast is inhabited by Indians. *Tierra del-Fuego* is a continuation of the main land. Its climate is cold and wet and the chief occupation is sheep-rearing. PUNTA-ARENAS is the port and the most southerly town in the world; it is a coaling station.

The Falkland Islands have a cold and wet climate; the chief occupation is sheep-rearing and the chief port is PORT STANLEY.

6. The Guiana Highlands

These highlands are very rugged and difficult of access. The lower valleys of the river are forested; the higher plateaus are suitable for cattle-rearing. The coastal plains produce sugar and cocoa. The population consists of labourers from Africa and India. It is divided into British, Dutch and French Guiana. The most important minerals are gold and diamonds. The largest town is GEORGE-TOWN which is the capital of British Guiana.

7. The Brazilian Highlands

The coastal lands receive very heavy rainfall and the rainfall decreases towards the interior. The rivers are interrupted by waterfalls; the most important is Sao-Francisco. Diamonds are mined in the upper valley. The chief products are coffee, cotton, tobacco, sugar and cocoa. Brazil is the greatest coffee producing country in the world.

The Savannahs and the highlands are very thinly populated; the chief occupation is cattle-rearing.

Towns.—RIO DE JANEIRO is the capital of Brazil and the second largest town of the Southern Hemisphere; it is connected with railways with areas producing coffee and minerals.

8. The Amazon Basin

The Amazon basin is the largest river basin in the world. The river is 3500 miles long; at certain places it is 50 miles wide. It is navigable from its mouth to the base of the Andes. The chief tributary on the right bank is the Madeiro and on the left bank the Negro. The Negro is joined to the Orinoco. The vegetation is typical of hot tropical forests, but most of the forests have not been explored. The occupation is fishing and the chief food is banana and wild fruits. The chief products of the region are rubber and timber. The animals are mostly tree-dwellers, for instance, snakes, monkeys, parrots, humming birds and alligators.

Towns.—PARA on the Para Channel near the mouth of the Amazon is the chief port for exporting rubber. MANAOS is a river-port at the junction of the Negro and the main stream. It is reached by large steamers. It is a rubber collecting centre.

9. The Orinoco Lowlands

These lowlands are also known as **Llanos.** The rainfall is mostly in summer and the rivers are usually flooded in summer; hence there are few towns on the lower courses of the river or on the delta. In the dry season the region is a little better than desert.

Town.—BOLIVAR is the centre of cattle-rearing industry.

10. The Plate Lowlands

The Plate river is the estuary of the Paraguay, Parana and Uruguay rivers. The lower courses of these rivers are known as the **Pampas Lands.** The region may be compared with the Prairies of North America. The Pampas lands support cattle and sheep; the chief crops are wheat and maize.

Agriculture.—Agriculture has grown very rapidly in this region; the chief products are wheat, maize, oats, flax,

sugar-cane and cotton. More recently, cattle have increased in numbers and sheep have declined; this is on account of greater areas being used for wheat cultivation. The whole region is a network of railways.

Towns.—BUENOS-AIRES is the capital and chief port of Argentina and the largest city in South America, but it has a poor natural harbour on account of the estuary of the Plate being very shallow; artificial harbour is being built. Railways radiate from Buenos-Aires to all parts of South America. The other ports are MONTEVIDEO and ROSARIO which export wheat, wool and cattle. MENDOZA is a raliway station at the foot of the Andes.

11. The Patagonian Desert

This desert in the south consists of sand. The chief occupation is sheep-rearing and the chief port is BAHIA-BLANCA.

QUESTIONS ON SECTION I

1. Give examples from South America of the connection between relief, temperature, rainfall and natural vegetation.

2. Explain the following terms :—

   Selvas, Llanos, Campos and Pampas.

3. Discuss the distribution of the following in South America : Cotton, wool, rubber, wheat, coffee, vine and silver.

4. What are the chief occupations of South America and where are they carried out?

5. Give an account of the foreign trade of Argentina.

6. Give a geographical description of Brazil, noting especially those features that have led and may lead to economic expansion.

7. Discuss the geographical impediments that lie in the way of the economic development of the Amazon basin.

8. Choosing an example in each case from South America illustrate (*a*) the resources and developments of the tropical forest

region, (*b*) the relation of wind, relief and rainfall (*c*) the conditions under which stock-farming is successfully carried out.

9. Describe the western coast of South America under the headings of (*a*) outline, (*b*) currents, causes and consequences, (*c*) the chief harbours.

10. Buenos-Aires in its railway development has been compared to London. What reason is there for the comparison? The only Trans-Continental Railway in South America starts from Buenos-Aires. Where does it end? What natural difficulties had its builders to meet and how did they meet them?

SECTION II—AFRICA

CHAPTER LXII

PHYSICAL FEATURES

Africa has been called the "Dark Continent" in spite of many seats of ancient civilisation; the civilisation of Egypt has been known from very ancient times. A great part of Africa has been explored during the last hundred years; even, at present, some of the interior parts are not fully known.

Africa is the second largest continent; it is next to Asia in size. The Equator cuts it into two parts ; the upper part is bigger and broader than the lower.

It has been said before that the Sahara separates Africa from Europe and not the Mediterranean sea. This is due to the fact that the great desert of Sahara has been a great barrier to communication. Moreover, the climate of the northern coast of Africa is of the Mediterranean type, and hence there is a close relationship between the North African Coast and the South European Coast.

Comparison with South America.—1. Both the continents are triangular in shape.

2. The broadest part of Africa is crossed by the Tropic of Cancer and is a desert, while the broadest part of South America is crossed by the Equator and is a dense tropical forest.

3. The surface of Africa consists of a huge table-land with mountains on the edges and very narrow coastal plains, while the surface of South America consists of a central plain surrounded by highlands on east and west.

4. The rivers of Africa are not navigable because of rapids and waterfalls while the rivers of South America are navigable for long distances.

5. The Amazon valley is an area of heavy rainfall, similarly the Congo valley is also an area of heavy rainfall. In both these regions we have rainfall throughout the year.

6. The Kalahari desert in Africa corresponds to the Atacama desert in South America.

7. The extreme south of Africa resembles Middle Chile, both having the Mediterranean type of climate.

Sea-Coast.—The coast of Africa is not indented; there are very few natural harbours; the coast is low and the coastal plain is narrow. The east and west coasts of the Equatorial regions have a very hot and damp climate. In some places the desert meets the sea-shore. In the north-west and in the south-west the coast is high, but the rocky mountains behind it check communication with the interior.

Surface Features.—The whole of Africa is almost a plateau consisting of ancient rocks lying in horizontal layers. Very probably, this plateau formed a part of a much older continent, which stretched across the Southern Hemisphere. The plateau is not of uniform height; it is higher in the south and east than in the north. There is a broad belt stretching from north-east to south-west; this belt is crossed by the Great Rift Valley.

The only mountain system of any importance is the Atlas range which belongs to the Alpine system of Europe.

The higher portions of the plateau are cut by the Congo, and the Nile. The lakes of Africa are situated on the eastern branch of the plateau.

The Atlas mountains are divided into two branches—the greater Atlas and the lesser Atlas with salt lakes in

between, which are called *Shotts*. The Kamaroons are volcanic mountains in the west. The east coast mountains stretch from Abyssinia to Cape Town; the most important amongst them being the Drakensberg; the highest peaks—Kenya and Kilamanjaro, are of volcanic origin.

Rivers.—The character of the rivers of Africa is determined by the character of the table-land. The upper course of some of them is navigable, but they descend to the coastal plain by a series of waterfalls. The most

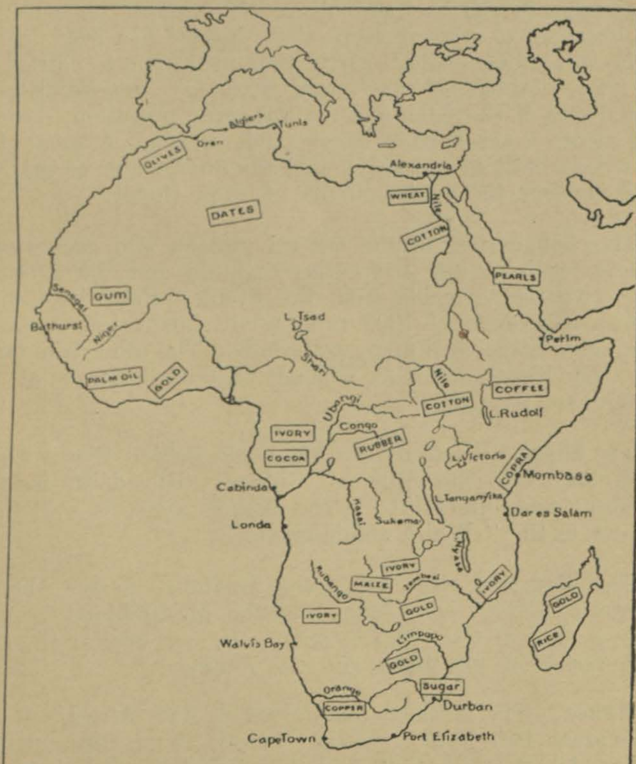


FIG. 71. Rivers, Lakes and Economic Products.

important rivers of Africa are the Nile flowing into the Mediterranean Sea; the Limpopo and the Zambesi flowing into the Indian Ocean; and the Senegal, Niger, Congo and the Orange flowing into the Atlantic Ocean.

The **Nile** flows out of Victoria-Nyanza and enters Albert-Nyanza and then flows towards the North. It receives the Bahr-el-Ghazal on its left bank from the west; little further on, it receives the Blue-Nile at Khartoum and the Atbara at Berber. The Blue-Nile and the Atbara bring the heavy rains of Abyssinia; they, therefore, cause heavy floods in the Nile upon which the agriculture of Egypt depends; it is because of this reason that Egypt has been called "the gift of the Nile." Irrigation in Egypt is carried on by two methods, (1) by Basin irrigation, depending upon the floods of the Nile, and (2) Perennial irrigation, depending upon a net-work of canals and ditches. A great dam has been built at Aswan to hold the flood water of the Nile and increase the winter supply of lower Egypt.

The **Congo** rises in the central plateau and goes southwards receiving the tributaries Luapula and the Lukuga. The river is navigable from the Stanley Falls to Stanley Pool, a distance of 1000 miles; but further on it passes through a gorge with many waterfalls. The other tributaries are the Kasai and the Ubangi. The tributaries of the Congo are navigable.

The **Niger** rises from the highlands behind Sierra Leone and flows into the Gulf of Guinea. The delta is very swampy and unhealthy. The Guinea coast is sometimes known as the " White man's grave."

The **Zambesi** rises near the Lualaba, passes through Victoria Falls, and falls into the Mozambique Channel. The course of the river is broken by waterfalls; the chief tributaries are the Shire and the Longwa.

Lakes.—The lakes on the plateau of East Africa represent the great Rift Valley. Lake Victoria is on the plateau; lakes Albert, Edward and Tanganyika are along the western line; and lakes Rudolf and Nyasa are along the

eastern line. The lakes of inland drainage are lake Chad on the south of the Sahara and lake Nagarmi in the desert of South Africa.

Minerals.—The chief minerals of Africa are gold and diamonds. The most important coalfield is the Rand, west of Johannesburg. Kimberley is noted for its diamond mines. Diamonds are also mined in the Transvaal. Alluvial gold is found in Rhodesia. Copper is mined in the north-west of Cape Colony and near Cambore. The most important coal-field in Africa is in Northern Natal. Tin is found in Northern Nigeria. Lead is found in the Atlas region.

CHAPTER LXIII

CLIMATE, VEGETATION AND NATURAL REGIONS

Climate.—In studying the climate of Africa we must consider the migrations of heat, pressure, and rainfall belts. Most of the continent lies within the tropics and, therefore, the mean annual temperature will be high; but, in the east

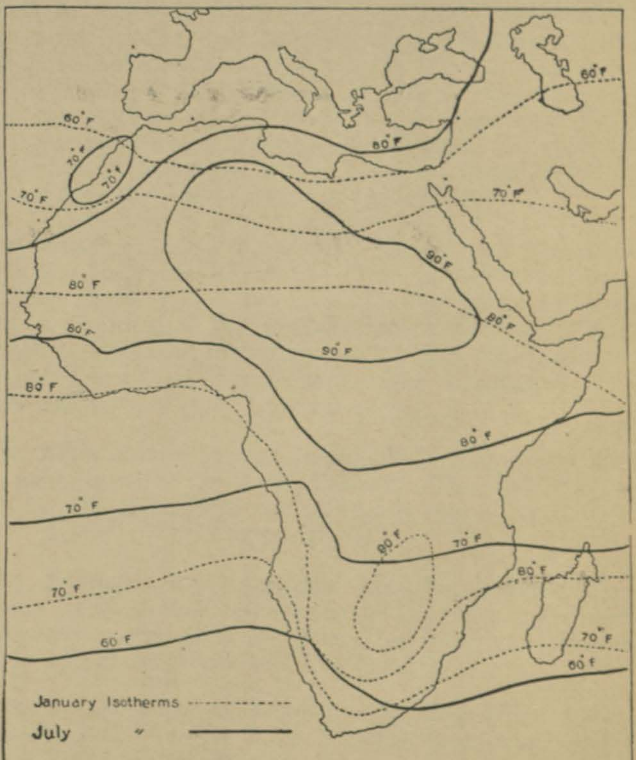


FIG. 72. Isothermal Map of Africa.

and south, the temperature is lower on account of altitude. Examine the Iso-thermal map of Africa, Fig. 72. It will be observed that the hottest part, in July, is north of the Equator and in January it is south of the Equator. There is a very little range of daily or seasonal temperature along the Equatorial belt.

In most parts of Africa the seasons are marked by the period at which they receive rainfall. Examine the rainfall map of Africa, Fig. 73. The Equatorial belt receives very

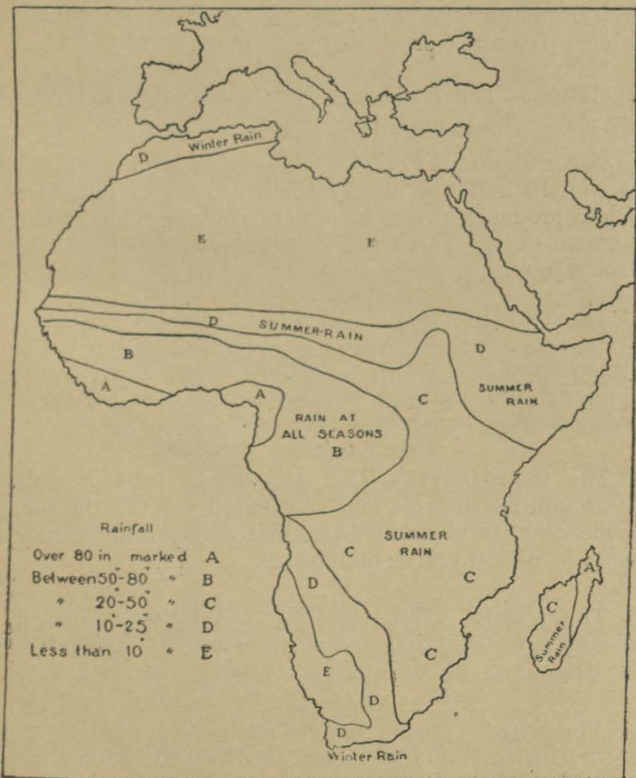


FIG. 73. Rainfall Map of Africa.

heavy rainfall, more than 50 inches; the eastern table-land receives moderate rainfall, between 25 and 50 inches, most of the rain falling in summer. The Atlas region, the Sudan and South-West Africa receive less rainfall, between 10 and 25 inches. The Sahara and Kalahari deserts receive very little rainfall, *i.e.*, under 10 inches.

The Mediterranean type of climate is found along the north-west and the south-west coast.

NOTE.—Africa lies both to the north and to the south of the Equator and therefore care must be taken in referring to summer or winter conditions.

Vegetation.—The vegetation of Africa is solely determined by climate. The following are the chief vegetation zones:—

1. *The Equatorial Forest.*—This region has a very hot and moist climate and has a very thick growth of large trees. The chief products of this region are rubber, ebony, palmoil and ground-nuts. The forests consist of trees like baobab and mahogany.

2. *The Tropical Grasslands*, which are also known as Savannahs, occupy the greater part of the Sudan basin of the Zambesi, and eastern and south-western parts of the great plateau. Long grass grows in summer when the rain falls and is used as pasture for cattle, sheep etc.

3. *The Semi-Desert.*—The semi-desert type of vegetation is found northwards and southwards of the Savannahs and consists of scrubland. The chief products are gums and shrubs like myrrh and frankincense.

4. *The Desert.*—The Sahara and Kalahari deserts have practically no vegetation except in Oases. The chief plant in the Oases is the date-palm.

5. *The Mediterranean Region* includes the Atlas region in the north-west, and the Cape Province in the south. In these regions there is no rainfall in summer and therefore the chief products are the olive, corkoak , vine, etc.

Animals.—The animals of Africa are closely connected to the vegetation zones:—

The Equatorial forests have animals like monkeys, gorillas and apes, that is, mostly tree-dwelling animals. The chief animals of the Savannahs are the elephant, giraffe, zebra, antelope, rhinoceros and hippopotamus; the rivers are full of crocodiles. The chief animals of the desert region are the camel and the ostrich.

Africa is full of insects and some of them, for instance, the tse-tse fly are very dangerous; the white-ant is also very common.

People.—The Moors, Arabs and Egyptians live north of the Sahara, but the south of Sahara is inhabited by the Negroes and the Bantus; the Pygmies of the Congo forest are still backward and uncivilised. A greater part of Southern Africa is inhabited by Europeans.

Natural Regions.—The natural regions of Africa are based upon and closely related to climatic regions and vegetation zones. We will study the countries of Africa according to the following physiographic regions based upon climate, vegetation and relief of the land:—

1. The Atlas Region or the Mediterranean States including Morocco, Algeria and Tunis. Libya forming part of the semi-desert may also be considered in this region.
2. The Sahara or the Great Desert.
3. The Nile Lands.—Egypt and the Anglo-Egyptian Sudan.
4. The Sudan and the Eastern Horn of Africa including Abyssinia, Eritrea and Somaliland.
5. Western Africa—the Guinea Lands and the Congo Basin.
6. Eastern Plateau of the Great Lakes—including Kenya, Uganda, Tanganyika, Zanzibar, Northern Rhodesia and Portuguese East Africa.

7. South Africa—including Cape Colony, Natal, Orange Free State, the Transvaal, Swaziland, Basutoland, Bechuanaland, South Rhodesia and South-West Africa.

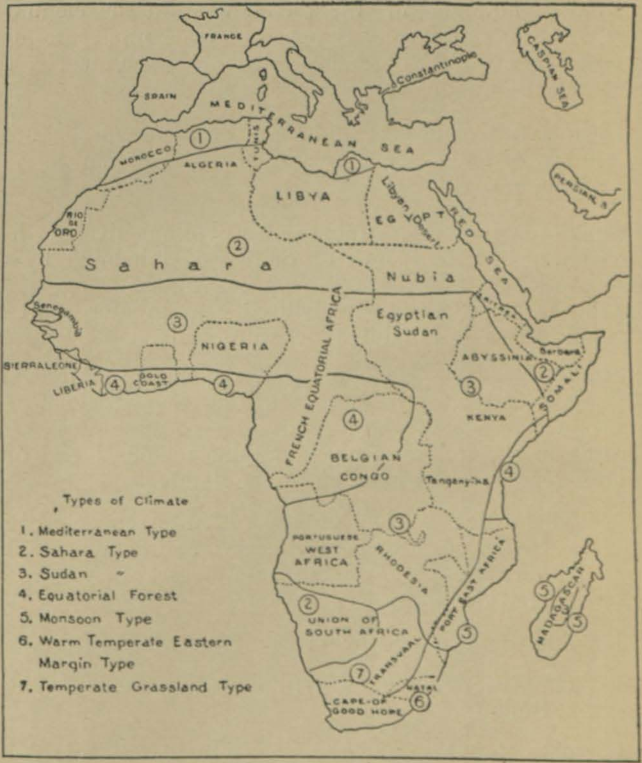


FIG. 74. Natural Regions and Political Divisions.

CHAPTER LXIV

THE ATLAS REGION AND THE DESERT LAND

(A) The Atlas Region

The Atlas region includes Morocco, Algeria and Tunis; the region is also known as the Mediterranean or the Barbary States. The Atlas chain runs through the three countries. Along with this region we may consider Tripoli (Libia Italiana) which really forms a part of the desert land.

Physical Features.—There are three well-defined natural regions:—(*i*) The coastal strips, (*ii*) The plateau, and (*iii*) The Sahara border. The mountains run from south-west to north-east and are a part of the great Alpine system of Europe. The fertile plains are known as the *Tell*. The high plateau of the *Shotts* lies between the northern and the southern range.

Climate.—The climate is of the Mediterranean type with most of the rainfall in winter.

Vegetation.—The chief trees are corkoaks, olives, and cedars. The chief fruits are vines, mulberries, oranges and lemons. The chief crops are wheat and barley. Algeria is the most fertile part.

Political Divisions.—Algeria is a French colony and sends deputies to the French Parliament. Morocco and Tunis are French protectorates. Tripoli belongs to Italy since 1912; formerly it was a part of the Turkish Empire.

Towns.—(*a*) **In Morocco.**—Fez is the capital and the largest city. It manufactures red fez caps, leather goods and rugs. Morocco City, one of the former capitals, stands at the foot of the high Atlas. Tangier and Mogador

are the chief ports. CASABLANCA, on the Atlantic coast, is an important port and has a good artificial harbour.

(*b*) **In Algeria.**—ALGIERS is the capital and the chief sea-port and has a large trade with Marseilles. The other ports are ORAN, PHILIPPEVILLE and BONA. CONSTANTINE is a very old city.

(*c*) **In Tunis.**—TUNIS is the capital and centre of foreign trade and the largest city in the Atlas region. It is a natural outlet of the richest valley in the Atlas region. BIZERTA is a strong naval station.

(*d*) **In Tripoli.**—TRIPOLI is the chief city and the starting point of caravan routes.

(B) THE SAHARA DESERT

The Sahara Desert is the largest desert in the world. The desert consists of sand-stones and lime-stones. The summer is very hot and the winter very warm. The annual rainfall is less than 10 inches and in some places it is practically negligible. The *Simoom* or the desert sand-storm is the chief terror of the caravan travellers.

There are a few fertile spots known as Oases where settled life is possible. Wheat, barley, pulses and fruits are grown in Oases where water-supply is regular; the date-palm is an important food tree of the desert land.

CHAPTER LXV

THE NILE LANDS

The Nile lands comprise Egypt and the Anglo-Egyptian Sudan. Egypt may be divided into (1) the Valley of the Nile, (2) the Nile delta and (3) the Desert. The Anglo-Egyptian Sudan may be divided into (1) the North Desert, (2) The belt of Savannahs, (3) The southern forest.

Egypt is an independent kingdom. It is ruled by its native king, but Britain has reserved certain rights to secure the command of the Suez Canal. The Anglo-Egyptian Sudan is under the British Empire.

Surface Features.—The Nile basin is the fertile part of the country; most of Egypt is a desert. The Nile has its source in Lakes Victoria, Edward and Albert; its course is interrupted by many water-falls. When it leaves the plateau of the Sudan it becomes a slow stream, and then receives the tributaries, the Blue Nile and the Atbara. The first cataract is in Egypt, the second cataract is near Halafa. It is from the first cataract at Aswan, that the Nile enters the famous valley of Egypt. The Nile has created a great delta below Cairo, but the navigable distributaries are the Rosetta and Damietta; the mouths of others are cut off from the sea by sand.

Climate.—Near the source of the Nile the region receives heavy rainfall, but when the river enters the plain the region receives only summer rainfall. The rainfall is heavy in Abyssinia, therefore, the tributaries cause heavy floods.

Agriculture.—It is only along a narrow strip following the river that the land is cultivated. The chief crops of Egypt are cotton, wheat, tobacco, sugar, dates, pulses, maize, barley and beans. A little rice is also grown. The chief crops of the Anglo-Egyptian Sudan are wheat and cotton; and other products of importance are gum-arabic, ivory and ostrich feathers. The Anglo-Egyptian Sudan has a fertile alluvial soil, and is likely to be an important producing

country in near future; cotton is likely to develop. In the Sudan a great dam known as Sennar Dam has been built across the Blue Nile, and a great area of land now produces cotton.

Towns.—CAIRO is the capital and the largest town in Egypt. It occupies an important position at the meeting point of routes from Alexandria and Port Said. In winter Cairo attracts a large number of tourists. ALEXANDRIA, the chief port, lies to the west of the delta and is free from the deposition of silt. It exports cotton. ASWAN occupies an important position because of the great dam built near it. PORT SAID at the northern entrance of the Suez Canal is a Coaling Station.

KHARTOUM at the junction of the Blue and White Niles is the capital of the Anglo-Egyptian Sudan. It is a trading town and a railway centre.

CHAPTER LXVI

THE SUDAN AND THE EASTERN HORN OF AFRICA

(A) THE SUDAN

Surface Features.—The name Sudan is applied to that large tract of land bounded on the north by the Sahara and on the south by the Equatorial forest. It forms a part of the low table-land of North Africa.

Divisions.—The Sudan may be divided into (1) The eastern part known as the Anglo-Egyptian Sudan which belongs to the British, (2) The western part, *i.e.*, the basin of the Niger and the Senegal which belongs to the French; (3) Northern Nigeria which lies between the above two and is very fertile. It belongs to the British.

Climate.—The summers are very hot and the winters are very warm. The mean annual temperature is about 80° F. The rain falls in summer only.

Vegetation.—The vegetation is typical of tropical grass-lands. The chief natural vegetation being trees like baobab, and along the desert margin aloes and gums. The chief crops are millet, wheat, maize, beans, cotton, indigo and kolanuts. The chief occupation on dry land is cattle-rearing.

Towns.—TIMBUKTU is the capital of French Sudan and an important trade centre. It is the meeting place of Caravan routes from Morocco, Algeria and Tripoli. KANO is an important market and caravan centre. It is famous for its native manufactures of pottery, metal-works, indigo dye and cotton manufactures. KUKA is an important market town near Lake Chad. SOKOTO is a Mohammadon centre.

(B) The Eastern Horn of Africa

This name is applied to the projection of land south of the Gulf of Aden and includes Abyssinia, Eritrea and Somaliland.

Abyssinia is an independent country under a despotic Christian ruler. On account of its isolation it has maintained a form of debased Christianity up to the present time, which was introduced in the fourth century. The surrounding lands are inhabited by Mohammadans.

Eritrea belongs to Italy; Somaliland is divided into French, British and Italian territories.

Surface Features.—The Great Rift Valley is the most striking feature which crosses the region from north-east to south-west. The general relief of the land is very varied. Abyssinia consists of plateaus and valleys, Eritrea is a hilly country and Somaliland is mostly desert.

Climate.—The climate of this region depends upon the altitude. There is very little range of temperature on account of nearness to the Equator. Along the coast line the winters are hot and summers very hot.

Vegetation.—The chief vegetation is bamboo forest. Cotton, sugar and coffee are cultivated in Abyssinia; cattle, sheep and goats are reared in Somaliland.

Abyssinia is rich in minerals, but most of these have not been worked.

Towns.—Addis-Abeba is the capital of Abyssinia. Gondar is the ecclesiastical capital.

Massawah, on a small coral island, is the port, capital and railway station of Eritrea.

Berbera, the capital of British Somaliland, occupies an important position near the southern entrance to the Red Sea.

CHAPTER LXVII

WEST AFRICA

(A) THE GUINEA COAST

The Guinea coast comprises a number of colonies from Cape Verde to the mouth of the Congo. There are seven French colonies, four British colonies, one each Portuguese and Spanish and one Negro republic.

Climate.—The rainfall along the coastal plain is heavy, most of the rain falling in summer; the climate is hot and damp. The rainfall on the plateau is scanty. The temperature is uniformly high at all seasons.

Products.—The forests produce mahogany, ebony, timber, oil-palm and rubber; cocoa is produced in Gold Coast and Saoe Thomé. Other products are rice, maize and kolanuts.

Minerals.—Gold is the chief mineral obtained by dredging river-beds and by mining. Tin is obtained from Nigeria; small deposits of coal are also found.

British Upper Guinea.

The Gambia Colony.—The chief product is groundnuts, BATHURST is a good natural harbour, and is the capital.

Sierra Leone.—The chief products are palm-kernels, oil, kolanuts, rubber, groundnuts and pepper. FREE TOWN, the capital has a good harbour and has a good trade, but its climate is unhealthy.

Gold Coast.—This colony includes Ashanti lands and the Northern territories; the coastal lands are forested while the northern regions are Savannahs. The chief products are cocoa, rubber, palm-kernels, oil and timber. Gold is also obtained. Cotton is likely to flourish in the near future. ACCRA is the capital, and SEKONADI is the chief trading town and railway station.

Nigeria.—Nigeria is the most important British possession in West Africa. The chief products are rubber and palm-oil. Nigeria is rich in minerals, especially tin; lead, iron, silver and coal are also found. LAGOS is the capital and port of Nigeria. It exports palm-oil and kernels, rubber, kola and groundnuts, ivory, tin, hides and cotton.

Liberia is a Negro republic founded for Negro slaves liberated from America.

The Cameroon, which formerly belonged to the Germans is divided between the British and the French. French Congo is in the South and Angola still farther south. Angola is the largest Portuguese possession and is in a very backward state. Cattle-rearing is likely to develop. LOANDA is the capital and chief port. BANGUELA is another important port. Railways run eastwards from both these ports to reach the Katanga copper mines.

French Guinea is a large tract of land with similar features. The capital and the chief port is KONAKRI. The headquarters of the Governor-General of French West Africa are at DAKAR.

(B) THE CONGO BASIN

It is a circular plateau surrounded on all sides by a higher plateau; the valley of the river is a depression. The climate is equable and very hot. The rainfall on the plateau is greater than that on the coastal plains. The vegetation is typical of the Equatorial forests but not so dense as that of the Amazon Basin. The chief products are rubber, palm-oil, palm-kernels, copal and ivory.

LEOPOLDVILLE is the capital and BOMA is the chief port.

CHAPTER LXVIII

THE EASTERN PLATEAU OF THE GREAT LAKES

The eastern plateau comprises the British colonies of Uganda, Kenya, Tanganyika and Nyasaland and Portuguese East Africa. The whole tract may be divided into:—(*a*) the coastal lands, and (*b*) the plateau itself.

Climate.—The coastal lands are very hot. Many parts of the plateau have rich soil. The rainfall on the plains is heavier than that on the plateau and it decreases from south to north. Most of the rain falls in summer.

Vegetation.—The coastal lands produce rubber, rice, bananas, spices, coconut, palm and hemp. The volcanic soil of the plateau is used for agricultural purposes; the chief crops are cotton, tea, maize, coffee and hemp. Cattle-rearing is also an important industry.

The Kenya Colony and Uganda.—The chief exports are cotton, grain and oil seeds, hides and skins, coffee, ivory and copra. MOMBASA is the most important town and port. It is built on a coral island and connected to the main land by a bridge. It has a very large Hindu population. NAIROBI is the capital and a centre of big game hunting.

The Tanganyika Territory.—The climate and vegetation are like those of Kenya Colony. The chief products are coconuts, rubber, cocoa, sugar, tea and coffee. DAR ES SALAAM is the capital, chief port with a natural harbour and an important railway station.

Zanzibar and **Pamba** are two islands of coral formation belonging to the British. Zanzibar is very fertile and healthy. The chief product of the island is the clove; the world's supply of cloves is exported from these two islands mainly.

Northern Rhodesia and the Nyasa Land Protectorates.—These are the southern portions of the plateau and belong to the British. The annual range of temperature is small and the vegetation is Savannah grasslands. The river valleys are unhealthy. The chief products are rubber, cotton, tobacco, maize and millet.

The region is rich in minerals but very few of them have been worked. The chief minerals are lead and zinc. LIVINGSTONE is the capital and is situated near the Victoria Falls. BLANTYRE is situated in the heart of the Shire highlands which produce coffee, tobacco, rubber, gold, silver, copper, iron and coal.

Portuguese East Africa.—It lies south of the Tanganyika territory and is entirely on the lowlands of the coast. The climate is of the Monsoon type. The rainfall is mostly in summer. The summers are hot and winters comparatively cooler. MOZAMBIQUE is the chief port and exports rubber, ivory, and coffee. Other ports are LORENCO and MARQUES.

CHAPTER LXIX

SOUTH AFRICA

The southern part of the continent is occupied by the British. South Africa is divided as follows:—

1. *The Union of South Africa* including the Cape of Good Hope, Natal, the Transvaal and the Orange Free State. South-West Africa (formerly belonging to the Germans) is also under the administration of the Union. Basutoland, Swaziland and Bechuanaland are British protectorates. The Union of South Africa was formed in 1910. 2. *Southern Rhodesia*, which is a self-governing colony of the British Empire since 1923. 3. *Northern Rhodesia*, which is a Crown Colony since 1924 forms part of the plateau of the great lakes discussed in the previous chapter.

Surface Features.—There are three well-marked terraces in the plateau region. The first terrace is known as the *Little Karroo*, the second as the *Great Karroo*, and the third the *High Veld*. There are many flat-topped prominences known as *Kopjes*. The coastal plain is narrow everywhere. The chief rivers are the Zambesi, with the Shire, the Limpopo and the lower Orange with its tributaries the Molopo, and the Vaal. The famous Victoria Falls occur in the middle course of the Zambesi.

Climate and Vegetation.—The following are the chief zones of climate and vegetation:—

(A) The Plateau

1. *The Tropical Climate* occurs in the northern part of the Transvaal. The vegetation is of the Savannah type and is sometimes called the low Veld.

2. *The Hot Desert Type* of climate is found in the Kalahari desert on the western half of the plateau. The vegetation is very scanty consisting of shrubs and bushes.

3. *The Temperate Continental Type* of climate is found on the eastern half of the plateau. This region is very hot in summer, and cold and dry in winter; it has very little natural vegetation.

(B) The Coastal Lands.

1. *The Hot Desert Type* of climate occurs in the strip of land on the west coast.

2. *The Mediterranean Type* of climate is found in the south-west. The Great and Little Karroo lie in this region. Most of the rainfall is in winter. The valleys are fertile and cultivated. The region is forested, in which valuable trees, especially pines, oaks and eucalyptus grow.

3. *The Warm Temperate Type* of climate occurs in the southern part of the Transvaal and in Natal. The vegetation consists of palms and bananas on scattered parts.

Agriculture.—Agriculture comes next to mining and is the chief occupation in South Africa. The chief crops are maize, wheat, corns (sorghums), sugar, tobacco, cotton and tea. The cultivation of fruits is a growing industry. The chief fruits are oranges, lemons, grapes, apples, pears, peaches, apricots, plums, pine-apples, melons, mangoes and guavas. Wine and brandy are made from the grapes.

Animals.—The chief animals of South Africa in order of their importance are sheep, Angora-goats, cattle, horses, mules, asses and pigs. Poultry-farming is also progressing. Ostriches are also common but the feather industry is declining on account of change in women's fashions.

Minerals.—South Africa is very rich in minerals. It is the only source of diamonds and about half the world's output of gold is mined here. The diamond mines are at Kimberly and near Pretoria. The richest goldfield is at WitWatersrand in the Transvaal. Coal is found in Great Karroo; coalfields are known in Natal, the Transvaal, Orange Free State, Zululand and Cape Colony. Other minerals mined are copper, tin, iron, lead, mica, zinc, manganese, antimony,

arsenic, bismuth, cobalt, gypsum, nickel, soda and platinum.

People.—The white population consists of Dutch, English and French settlers. The natives, Kaffirs and Zulus belong to the agricultural and pastoral classes. There are also many Asiatics from India and Malaya. As a result of inter-marriage of the Europeans and natives of South Africa, a large population consists of mixed or coloured persons.

Towns.—(*a*) *The Cape of Good Hope.*—CAPE TOWN is the capital of the Cape Province and the chief port of S. Africa with a good harbour. Its hinterland is very fertile. It is connected with gold and diamond producing areas by railways. It is also an important fishing centre. PORT ELIZABETH and EAST LONDON are important ports, trading chiefly in wool, hides, skins, mohair and ostrich feathers. KIMBERLEY is the centre of diamond mining area and is connected with Cape Town.

(*b*) *Natal.*—DURBAN is the largest town and the chief port. It is near the gold mining areas and therefore trades chiefly in gold; other exports are wool, coal, hides and sugar. Whales are also captured near Durban.

(*c*) *Orange Free State.*—BLOEMFONTEIN is the capital and the largest town and an important railway centre.

(*d*) *The Transvaal.*—PRETORIA is the capital, and the administrative centre of the whole Union of South Africa. JOHANNESBURG is the largest and the richest town. It is an important railway centre and the chief centre of gold-mining.

(*e*) *Southern Rhodesia.*—SALISBURY is the capital and centre of gold-mining district. BULUWAYO is a railway centre.

(*f*) *South West Africa.*—WALFISH BAY is an important British port and a solitary harbour along the west coast.

CHAPTER LXX

THE ISLANDS OF AFRICA

(A) THE INDIAN OCEAN ISLANDS

Socotra is a detached portion of the Eastern Horn and is noted for its aloes. **Zanzibar** and **Boma** have already been referred to.

Madagascar (French) was formerly connected with the great plateau of Africa; the separation must have been effected in very remote ages, because the animals of Africa are different from the animals of Madagascar.

The climate resembles that of the East African Plateau. The eastern margins have a typical Monsoon type of climate. The chief crops are rubber, tanning-bark, rice, cotton, cocoa, coffee, vanilla and tobacco. The land is rich in minerals but very few have been worked. The chief exports are hides, tanning-bark, rubber and gold. The capital is ANTANANARIVO in the centre and the chief port is TAMATAVE.

The **Mayotta** and the **Comoro** islands (French) export vanilla, cocoa and sugar.

The population of Reunion (French), about 400 miles east of Madagascar, consists mostly of Europeans and Hindus. The chief crops are sugar, vanilla and coffee. **Mauritius** (British) is mostly occupied by Hindus. The chief crop is sugar, most of which is exported to India and Great Britain. PORT LOUIS has a good harbour.

Seychelles (British) consists of about 90 small islands, mostly of volcanic origin or corals. The chief exports are copra, coconut-oil and vanilla.

(B) THE ATLANTIC ISLANDS

The **Azores,** due west of Portugal are volcanic islands. The chief products are oranges and pine-apples.

The **Madeira** cultivates Mediterranean fruits.

The **Canaries** consist of many large islands. The capital is LAS PALMAS, which is an important port and calling station for ships. The chief exports are fruits, wines and cochineal.

The **Cape Verde Islands** export coffee, tobacco, maize and millet. PORTE GRANDE is a coaling station.

Ascension and **St. Helena** are important coaling and cable stations.

QUESTIONS ON SECTION II

1. How do you explain that the Sahara and not the Mediterranean Sea is the real southern boundary of Europe?

2. Give an account of the Congo Basin with special reference to its products and exports.

3. Compare the Atlas region with Asia Minor as fully as you can.

4. Describe the course of the Nile and give an account of the part it plays in the economic life of Egypt and the Sudan.

5. Where are the chief gold and diamond mining areas in Africa? Why is it that gold and diamond mining areas do not support such a dense population as the coal mining areas of Europe?

6. What are the chief products of the Union of South Africa? Account for the wide range of vegetable products.

7. "The Anglo-Egyptian Sudan and Southern Rhodesia have great futures before them." Discuss this statement.

8. In what respects have geographical features aided or hindered the growth and development of Cairo, Cape Town, Zanzibar, Khartoum, Algiers, Durban and Tunis?

9. Describe the scenery and inhabitants you would expect to find in the Sahara? In your description emphasize causes and consequences.

10. What explanation do you apply to account for (*a*) the rise and fall of the Nile (*b*) the heavy rainfall in Sierra Leone (*c*) the existence of a Mediterranean climate in the south-west corner of Africa?

SECTION III—AUSTRALASIA

CHAPTER LXXI

PHYSICAL FEATURES

The term **Australasia** includes Australia, New Zealand, New Guinea and a number of small islands. The term **Oceania** includes the following:—(1) The Common Wealth of Australia including Australia and Tasmania. (2) New Zealand with Stewart Island. (3) New Guinea or Papua. (4) A collection of islands known as Polynesia (eastern portion) and Melanesia (western portion).

Position and Size.—Australia is the only continent lying entirely south of the Equator between 10°S. and 40°S. It is almost bisected by the Tropic of Capricorn. Its coast-line is not indented and therefore there are very few inlets.



Fig. 75. Australia—Surface Features and Isotherms.

Surface Features.—The continent of Australia may be divided into the following divisions:—

1. **The Eastern Highlands.**—These highlands are along the east coast. Deep valleys have been cut in it by streams. The slope on the west is gradual but on the Pacific side it is steep. The system is sometimes known as the Great Dividing Range. The chief portions of the range are (*a*) Australian Alps (*b*) The Blue Mountains and the Liverpool and New England. Tasmania is a detached portion of this Great Range.

2. **The Central and Eastern Lowlands** consisting of Lake Eyre Basin and the Murray-Darling Basin. This depression stretches from the Gulf of Carpentaria to the south coast. Lake Eyre is below the sea-level. There is a Rift Valley in the south containing Lake Torrens.

3. **The Low Plateau of Western Australia.**—This plateau resembles the plateaus of Arabia, the Deccan, Brazil and Guinea. Very probably these ancient plateaus were joined together forming a vast continent in very remote ages.

4. **The Great Barrier Reef** along the east coast is composed of corals.

Rivers.—There are very few important rivers in Australia on account of special configuration and distribution of rainfall. The small rivers in the north of the Western Plateau—Fitzroy, Victoria and Roper are navigable in their lower courses. The Clarence, Richmond and Tweed are known as the North Coast Rivers. The Murray-Darling system forms the important rivers of the south draining to the Southern Ocean. These rivers have very little water in summer on account of great evaporation. The river flows into Lake Alexandrina which is a large lagoon. There are a few inland rivers flowing towards Lake Eyre.

Minerals.—The mineral wealth of Australia is very great. *Gold* was the chief attraction of the European settlers. More recently the production of gold has decreased and that of coal increased. Gold is mined at Kalgoorlie in West

Australia; at Ballarat, Bendigo and Castlemanie in Victoria; at Charters Towers and Mount Morgan in Queensland. All these mines are approaching exhaustion.

The value of silver and lead mined in Australia is greater than that of gold. *Silver* and *Lead* are mined at Broken Hill, Chillagoe; and Mount Isa. Silver is also found in Tasmania. *Zinc* is found in the Broken Hill district. *Copper* is mined in South Australia and Queensland and *Tin* in Tasmania, New South Wales and Queensland. *Iron* is widely distributed in Australia but the chief mines are removed from coal. The chief deposit of iron is at Iron Knob, in South Australia. *Coal* is very abundant; the New South Wales Basin is the largest coal-field in the Southern Hemisphere; coal is also found in the Dawson River basin and in Tasmania. Deposits of oil are known to exist in Tasmania and New South Wales.

CHAPTER LXXII

CLIMATE, VEGETATION AND NATURAL REGIONS

Climate.—In determining the climate of Australia we must bear in mind the following important facts:—

1. Australia is an island, but the influence of the sea is felt only along the coastal margins.

2. The highest mountains are along the east coast and the prevailing winds are the South-East Trade Winds. Thus the rain bearing-winds do not reach the interior of the continent.

3. Australia lies entirely in the Southern Hemisphere and is bisected by the Tropic of Capricorn.

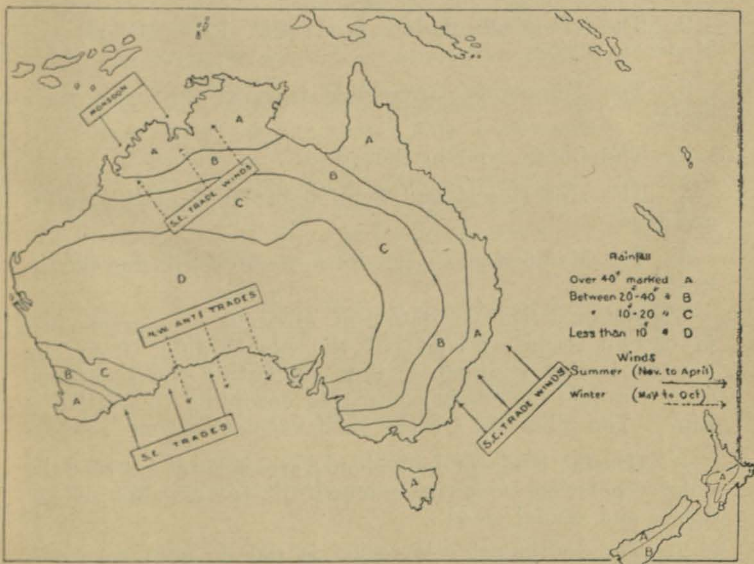


FIG. 76. Australia—Winds and Rainfall.

4. *Temperature.*—In January, the summer month, the greater part of the continent is above 80°F and in certain parts the temperature reaches 90°F. In July, the winter month, only the northern portions have a higher temperature.

5. *Winds and rainfall.*—In July, there is a high pressure belt over the land and therefore winds blow from the land to the ocean towards north-west and south-east. In the south, the North-westerlies bring rain to the south-west and south-east regions and to Tasmania. In January the pressure is low in the north and consequently, the Monsoon Winds blow from north-west and the South-East Trade Winds from the south-east which bring most of the rainfall.

We can therefore divide Australia into the following climatic types:—

1. The Monsoon type in the extreme north.

2. The Tropical Sudan type just lower below the Monsoon region.

3. The Temperate Grasslands type in the great river basin.

4. The China type in the east.

5. The Hot Desert and Semi-desert type in the centre and west.

6. The Mediterranean type in extreme south and south-west.

Vegetation.—The vegetation of Australia is characteristic in certain respects; some of the plants differ from the plants of other continents; thus supporting the separation of Australia from other continents according to Wallace's Line. The following are the chief vegetation zones:—

1. Coastal lands and highlands are hot-wet-forests; the chief vegetation is bananas, breadfruit trees, palms, vines, spices and sandal wood.

2. The south-east cold region is rich in gum trees. It also produces trees like pines and walnuts. The chief gum trees are kauri, jarrah and eucalyptus.

3. The grasslands of Australia may be divided into (*a*) Steppes or Temperate Grasslands and (*b*) the Savannahs or Tropical Grasslands.

4. The deserts have very scanty vegetation mostly consisting of tall grass with sharp leaves.

Agriculture.—Wheat is the most important crop of Australia. Australian wheat is the best in the world on account of its whiteness. Other crops are oats, barley, maize, hay, potatoes and sugar. The cultivation of fruits is steadily increasing; the chief fruits exported are apples, oranges, raisins, dried peaches and apricots.

Irrigation.—The greater part of Australia receives very little rainfall. The heaviest rain falling along the eastern margin and in the north. Australia is fortunate in having a large number of artesian basins. There is an artesian area from the Gulf of Carpentaria to the Murray basin. The water can be easily reached by tube borings and pumped out. The Murray basin has important irrigation works consisting of reservoirs, dams and weirs.

Animals.—As stated before Australia was long separated from the other land masses; this is supported by the typical animals of Australia. The native Australian animals are not found in other continents. The chief animals of this type are the pouched animals, especially, the kangaroo. The emu and the cassowary are running birds resembling the ostrich.

There is a large number of domesticated animals and consequently agriculture and pasturing are developing and are the principal occupations of the people. Sheep gives wool; other animals are cattle, horses and pigs. Poultry and bee-keeping are also increasing.

Natural Regions.—The natural regions of Australia correspond very closely with those of climate and vegetation:—

1. *The Tropical Monsoon Region* including the north and north-eastern coastal land.

2. *The Savannahs* are tropical grasslands forming the transition state from the Monsoon region to the interior desert.

3. *The Steppes* are temperate grasslands occupying the basin of the Murray-Darling system. This region is noted for sheep-rearing; wheat is cultivated in wetter parts.

4. *The Warm Temperate Eastern Margins;* sugar and maize are cultivated in this region.

5. *The Eastern Highlands* consisting of mixed forests; this region is noted for valuable mineral deposits.

6. *The Mediterranean Lands* in the extreme south producing typical Mediterranean fruits.

7. *The Desert and the Semi-desert* consisting of the greater part of Central and Western Australia. This desert is of no value except for the existence of gold.

8. *Cold Temperate Tasmania.*—The climate is similar to that of the British Isles. The highland is forested by trees. Fruits are also grown.



FIG. 77. Australia—Natural Regions and Political Divisions.

CHAPTER LXXIII

PEOPLE, TRADE AND TOWNS

Australia is very thinly populated. Most of the population is concentrated along the south-east and south-west. The population consists of Europeans and their descendants. There are very few aborigines and Chinese. According to the White Australian Policy the immigration of other nations is strictly restricted.

Government.—The Common Wealth of Australia is divided into various political divisions each having its Governor. The names of provinces are given under **Towns.**

Communications.—The railways of Australia suffer from the great drawback of a mixture of gauges; this is due to the fact that the railways started around independent points. The railways are connected with important ports, mining areas and wheat growing areas.

Trade.—The chief exports are wool and wheat. Australia exports the largest amount of wool in the world. Other exports are gold, hides and skins, butter, meat and copper. The chief imports are manufactured goods, chiefly machinery, tea and gunny-bags.

Towns.—

(A) In Queensland.

Brisbane is the capital and chief port. It is important on account of a rich hinterland and the mineral wealth of highlands behind it.

Ipswich is a manufacturing town and the chief coal centre. It manufactures cotton and woollen goods.

(*B*) *In New South Wales.*

SYDNEY is the capital, chief port, and the oldest and largest town in Australia. It has a good natural harbour, the port Jackson. The chief industries are preservation of meat and butter and the chief exports are wool, hides, skins, leather, gold, wheat and flour. BATHURST is an important wheat-growing and stock-rearing centre; formerly it was a gold mining town. NEW CASTLE is in the centre of the coal-fields. BOURKE at the head of the navigation of the Darling is an important cattle-rearing and copper mining town.

(*C*) *In Victoria.*

MELBOURNE is the capital and an important port at the head of Port Phillip Bay. It has a good harbour and is a good railway centre. It exports wool and fruits. BALLARAT and BENDIGO are important mining centres. MILDURA is important for its fruit industry. GEELONG exports wool and wheat.

(*D*) *In South Australia.*

ADELAIDE is the capital and is a good harbour. PORT AUGUSTUS exports wheat. WALLAROO exports copper, wheat and wool, and manufactures artificial manures. PORT PIRIE exports silver, lead and zinc mined in Broken Hill.

(*E*) *In Northern Territory.*

DARWIN has a good harbour. It is the junction of over-land telegraph line and marine cable.

(*F*) *In West Australia.*

PERTH is the capital and has become important on account of the discovery of gold in Kalgoorlie area. FREEMANTLE has an artificial harbour and is the chief port of West Australia. It is connected by railway with Perth. Other ports are Bunbery and ALBANY; the former is a coaling station and the latter a naval station.

(*G*) *In Tasmania.*

HOBART is the capital of this island and an important port noted for its fruits and hops. LAUNCESTON is the most important town in the north and is a commercial centre.

BURNIE and STRAHAN are small ports and railway towns exporting copper, tin, lead and silver.

CHAPTER LXXIV

NEW ZEALAND

The Dominion of New Zealand consists of the North and South Islands, Chatham islands and the Stewart islands. Other islands included in the dominion are Antipode islands, Auckland islands, the Cook islands, Mauru and Western Samoa. New Zealand in spite of its isolation from other continents is a great attraction on account of its scenery and hot springs.

The natives are known as Maoris and are very much like the Hindus of India. They are intelligent and capable. The population consists mostly of Britishers.

Surface Features.—New Zealand is mostly a mountainous country. The mountains run from north-east to south-west. The Southern Alps are in the South Island. There are many active and extinct volcanoes and hot springs. The area of volcanic activity is in North Island round Lake Taupo. The rivers are short and rapid; they are suitable for generation of water power. Waikato, the longest river is in North Island. New Zealand can be divided into the following regions:—

A. North Island.

1. The Auckland Peninsula occupying the north of the island. It is a low land.

2. The Volcanic Region round Lake Taupo.

3. The Wellington Plain, which is a fertile region.

4. The Eastern Mountains.

B. South Island.

1. The Southern Alps, consisting of a mountain range occupying more than half of the island.

2. The Canterbury Plain and Down-land.

3. The Otago Plateau in the south of the island.

4. The small coastal strip in the west known as West Land.

Climate.—The climate of New Zealand is mild and equable. It is of the Cold Temperate Oceanic type. This is due to the fact that New Zealand is a long stretch of country entirely surrounded by ocean. Its relief and distance from the Equator also have an important bearing on the climate. The temperature is greatly influenced by altitude in the highlands.

Vegetation.—About one-fifth of the land consists of forests. The natural vegetation of New Zealand differs from that of other countries. Kauri which was formerly used for houses and ship-building is now declining. There are forests of hard woods and soft woods. Kauri-gum is extracted from the trees and is used for making ornaments and varnish.

Agriculture.—The chief crops of New Zealand are wheat, oats, maize and fruits like apples, plums, peaches, grapes and oranges.

Animals.—The chief occupation of the people is cattle-rearing; about three-fifths of the exports of New Zealand consists of animals, wool, and other animal products. There are subsidiary industries like butter and cheese-making. The chief animals are horses, cattle, sheep and pigs. There are important fisheries round the islands.

Minerals.—The chief minerals are gold, coal, iron-ore and kauri-gum. Jade, sulphur and phosphates are also important minerals. The chief *industries* are preservation of meat, manufacture of butter, cheese and condensed milk, leather tanning and manufacture of woollen goods.

Towns.—AUCKLAND is the chief port and the largest city of the dominion. It has a good double harbour and is a calling station for steamers. WELLINGTON stands on

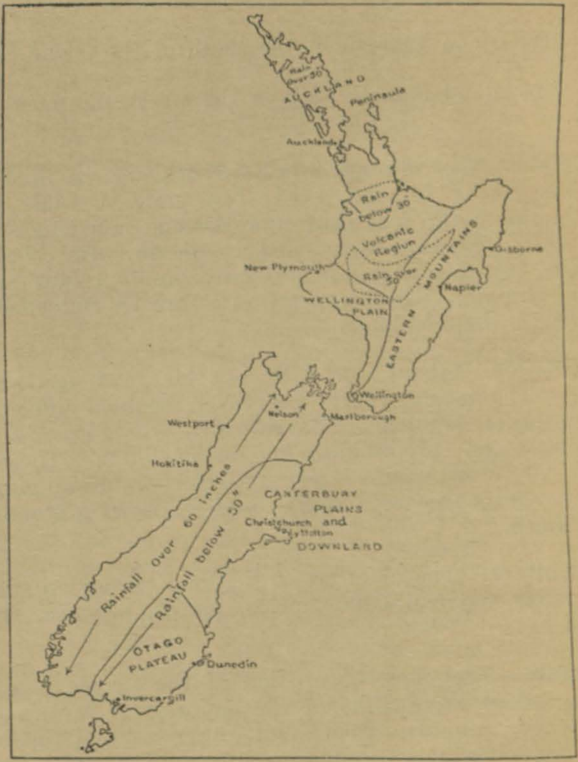


FIG. 78. New Zealand.

Cook Strait and is a meeting place of the traffic of North and South Islands. CHRIST-CHURCH is the chief port for the export of the Canterbury plain. DUNEDIN is the chief port of the Otago region. INVERCARGILL is the chief port of South Island and has a good harbour. Its chief exports are timber and pastoral goods.

CHAPTER LXXV

THE PACIFIC ISLANDS

The Pacific Islands consist of a large number of islands arranged in groups or single from the South-East Asiatic coast to the East Australian coast. These islands may be divided into two classes:—

1. Those of volcanic origin, usually referred to as High Islands, for instance, the New Hebrides, the Fiji and the Hawaiian Islands.

2. Coral islands which are sometimes known as Low-lands.

The climate of these islands is very equable and there is very little range of temperature. The volcanic lands are very fertile and the chief products are coconut, bread-fruit and bananas. In some of these volcanic islands sugar, rice, coffee, cotton and tobacco are cultivated. The coral islands produce coconut and fish.

The **Cook Islands** (producing copra, oranges and bananas), **Mauru** (producing large quantities of phosphates used as a manure), the **Union Group** and **Western Samoa** (producing coconuts and cocoa) are all dependencies of New Zealand.

The **Fiji Islands** (British) have important cultivations of sugar-cane, rice, bananas and coconuts. The capital SUVA is an important calling station.

New Caledonia (French) is important for its nickel deposits.

The **Hawaiian** or **Sandwich Islands** (the United States) are important as calling stations. They attract a large number of tourists on account of their scenery and volcanoes. The chief product is pine-apple. HONULULU is the capital.

New Guinea is a very large island. The western part is part of the Dutch East Indies; the south-east, known as Papua, is under Australia; the north-east formerly a German possession is now under Australia. The inhabitants are wild and belong to the Cannibal tribes.

QUESTIONS ON SECTION III

1. What are the natural regions of Australia? Describe their leading contrasts? What regions in Asia may be compared with them? Give reasons for your comparison.

2. Describe the chief geographic factors which have determined Australia's economic development.

3. Contrast the climate, vegetation and occupation of North and South Islands of New Zealand.

4. What is an artesian basin? Discuss the rôle of artesian basins in the present and the future development of Australia.

5. Why should so much of Australia be subject to desert or almost desert conditions? What efforts have been made and where have they been made to combat these conditions?

6. "The Great Barrier Reef of coral is of much importance to Queensland." Why? What is a coral? Why should there be coral in some seas and not in others?

7. What are the chief coal-fields of Australia and New Zealand? Point out why industries are dependent on it and how the coal reaches the sea for export?

8. Locate the areas (*a*) of river irrigation and artesian wells in Australia and (*b*) of volcanoes in New Zealand. In each case describe the main occupation of the people as effected by the nature of the district or its improvement at the hands of man.

9. What natural conditions have led to the concentration of the population of Australia in south-eastern and south-western sections of the continent?

10. "Australia shows some extraordinarily different types of climate." Discuss this statement and emphasize the causes and consequences?

APPENDIX—A

MAP PROJECTIONS

There are many surfaces which are not plane but they can be unrolled or "developed" into plane surfaces without stretching in any direction provided they are made of thin material *e.g.*, paper or thin sheet metal. For instance, a cylindrical tube, if cut from end to end can be laid out flat to form a plane surface. A cone is another surface which can be developed by cutting from its point to its base.

A great majority of curved surfaces cannot be unrolled into planes; they are known as " undevelopable surfaces." For instance, it is impossible to fit a sheet of paper to the surface of a round ball. The sphere, therefore, is undevelopable.

An ordinary geographic globe (12 ins. diameter) represents the reduced earth and its shape is very nearly spherical. We cannot lay a sheet of tracing paper on a globe to fit it closely everywhere without innumerable folds and creases. If the surface of the earth were developable, we would not have had to study map projections. As it is, we have to study different methods used for transferring the lines of latitude and longitude from the globe to a flat sheet of paper. A **Map Projection,** therefore, is a means of representing the lines of latitude and longitude of the globe on a flat sheet of paper. The net-work of latitudes and longitudes thus formed is called a *graticule*.

As stated above it is impossible to make a correct map of any portion of the globe; it is however possible to maintain certain definite qualities in a projection.

These are as follows:—

1. Preservation of area.
2. ,, ,, shape.
3. ,, ,, scale.
4. ,, ,, bearing.
5. Ease of drawing.

The student is familiar with the following properties of a sphere.—

1. That every plane section of a sphere is a circle.

2. That the section through the centre is the largest circle that can be cut from a sphere. It is called a *great circle;* all other plane sections are called *small circles.*

3. That the small circles get smaller and smaller as the plane of section moves away from the centre of the sphere.

Classification.—Various methods of projection may be classified in a general form as follows:—

1. Cylindrical Projections.
2. Conical Projections.
3. Zenithal Projections.
4. Conventional and Modified Conical Projections.

Cylindrical Projections.—In these we may imagine a sheet of paper rolled into a tube form and placed round a globe.

Conical Projections.—A sheet of paper rolled up to form a simple cone may be placed on a globe of convenient size. The cone could be placed in many positions, but the normal case, that gives a useful map is the one in which the apex of the cone lies on the axis of the earth produced.

Zenithal Projections.—Imagine a source of light at the centre of the globe and assume the globe to be transparent. Place a sheet of paper at the North Pole. It will be found that the meridians are projected as straight lines and the parallels as circles. The paper may be made to touch the globe at any other point, but in all cases the features of the circle will be projected as shadows. Projections made in this way are called Zenithal or Azimuthal Projections.

Conventional Projections include some greatly modified conical projections. These vary considerably in construction and appearance but are very widely used.

We will discuss a few important types of Projections most common in atlases:—

Mercator's Projection.—This is the best known of all projections. It is used for navigation purposes and also in nearly all atlases for maps of the world. Its chief defect is the misleading appearance of the polar areas. A cylindrical projection is orthomorphic when it has the same scale in two directions at right angles at all latitudes. We must therefore enlarge the scale along the meridian at each point in the same ratio as it is enlarged along the parallel.

For instance, the latitude scale at 60° is doubled, we must double the meridian scale also; a square of 1 mile side will at latitude 60° appear to be a square of 2 miles side, with an apparent area of 4 square miles. Hence its chief *defect* is that the scales are correct only near the Equator in either direction; in high latitudes areas are greatly enlarged. The shape of the areas is magnified but *not* distorted. The projection is therefore orthomorphic. South America is nine or ten times bigger than Greenland, whereas on this projection Greenland appears to be bigger than South America.

The great *merit* of Mercator's Projection is its use for purposes of navigation. As the meridians and parallels are straight lines at right angles, any straight line drawn in any direction on a Mercator chart crosses all parallels at a constant angle. Such a line is called a *rhumb line* or a *loxodrome*. A straight line crossing meridians has a constant bearing as the meridians all run true North and South. The loxodrome is not a great circle; a great circle on Mercator will be a curved line. For "great circle sailing" the bearing must be altered for each day's run, so as to approximate to the great circle course. See Fig. 36 on page 111.

Mercator's projection is also used for charts of ocean currents and other cases where it is important that *directions* should be readily seen. See Fig. 37 on page 112. Compare the size of Polar Regions with Equatorial regions in this map and also on a globe.

Conical Projections.—This group includes a large number of projections, several of which are in common use in atlases. As a class, they are suitable for maps of countries in temperate latitudes which do not have a great extent in latitude.

Let us suppose that a cone of paper is placed over a globe so that it touches it along any chosen parallel. When the cone is developed, the arc of the sector will be of the same length as the parallel to which it was tangent on the globe. Such a parallel is called a *Standard Parallel*.

The Simple Concial Projection with one Standard Parallel.—In the simple conic the pole of the cone is vertically above the pole of the globe and thus the globe and the cone coincide along a parallel of latitude, which is the standard parallel and is divided truly. A central meridian is drawn to represent the meridian which actually runs through the centre of the country to be mapped. The parallels are spaced along it at their true distances apart, reduction being made for scale.

Mollweide's or Elliptical Equal-Area Projection.—Mollweide's projection is an equal area projection. It is an ellipse in which the major axis (representing the Equator) is exactly twice as long as the minor axis (representing the distance from pole to pole along the central meridian). See Fig. 35 page 102.

All the meridians (except the central meridian) are ellipses, and the parallels of latitude are horizontal straight lines though they are *not* spaced at equal distances. The distance between the parallels of latitude decreases as the latitude increases. This projection, as the name implies, is an equal area projection and is used to show the distribution of phenomena in which the area covered is important, as for instance, in vegetation, peoples, rainfall etc.

APPENDIX—B.

STATISTICS

Population of Important Countries in Millions.

India	319
China	320
Japan	56
British Isles	47.3
France	41.5
Germany	56
Italy	38
Canada	8.8
The United States	105.7
Brazil	30.5
Argentina	9.0
Union of South Africa	6.0
Egypt	13.0
Australia	5.9

Population of Important Towns in Thousands.

Calcutta	1,330 000
Bombay	1,200
Lahore	280
Peking	1,000
Canton	900
Tokyo	2,200
Osaka	1,250
Yokohama	440

London	7,480
Glasgow	1,110
Edinburgh	450
Paris	2,900
Berlin	2,100
Rome	650
Montreal	620
New York	5,600
Chicago	2,700
Rio de Janero	1,100
Buenos Aires	1,700
Cairo	790
Alexandria	450
Cape Town	160
Sydney	930

APPENDIX C.

GENERAL QUESTIONS

1. Give an account of the distribution of volcanoes in the Pacific Region. Describe the characteristics of some of the more important volcanoes of that region.

2. Describe the physical characters of the Mediterranean Sea and its northern coast. Compare the Mediterranean Sea with the Gulf of Mexico.

3. What are the principal types of mountains? Mention examples of each. Explain, as far as you can, the way in which each type has been formed.

4. In what regions of the world does the drainage find no outlet to the Sea? Describe the characteristics of one of these regions.

5. Describe the conditions necessary for the formation of (*a*) a delta; (*b*) an estuary. Illustrate your answer by reference to examples.

6. In what ways have plains been formed? Describe the characteristics of the extensive plains in Europe and North America.

7. Distinguish between the Atlantic and Pacific types of coast, and give any explanation you can.

8. Give an account of the general arrangement of the winds on the surface of the earth between the Equator and 60°S. Where are there periodic variations in the arrangements brought about by seasonal changes? And why do they occur?

9. What factors determino the temperature of a region? Illustrate your answer by reference to India and its temperature both in Summer and in Winter.

10. Mention parts of the world with a more or less elevated seaboard where the climate is (*a*) very dry; (*b*) very wet. Explain the differences between the two.

11. Describe the distribution of temperate forests, and compare their importance with that of tropical forests.

12. Describe, and account for, the position of the desert regions of the world.

13. What are the chief requirements for a commercial sea-port?

14. What is meant by the statement that the Sahara, and not the Mediterranean, really separates Europe and Africa? Support this statement by reference to the climate and productions of Mediterranean Africa.

15. Indicate the probable "home" of each of three great races, White, Black, and Yellow,—and show how the climatic factors in each case were favourable to the development of the particular race in the particular area.

16. State briefly how far geographical conditions have favoured the concentration of so much of the population of the globe in South-eastern Asia and in Western Europe.

17. Draw an outline-map of Northern India showing the important railways. Write short notes with regard to each railway route. Discuss the importance of the ports where the railways terminate.

18. (*a*) Why is the North Atlantic traversed by more steamers than any other ocean?

(*b*) Why are sailing ships still used in both coasting trade and in trans-oceanic trade? In what ways are steamers preferable to sailing ships?

19. What physical difficulties would be met with in opening up Persia by railways? What other form of transport might be used? Describe with the aid of a map showing physical features and contours, the kind of country that would be traversed by a railway line in Persia.

20. If you were a merchant in the following places, what commodities would you try to deal in :—

(*i*) West coast of India, (*ii*) Upper Ganges valley, (*iii*) Rajput uplands, (*iv*) Mysore.

21. Can you foresee any changes which may take place in the future in the trade of :—

(*i*) China, (*ii*) Brazil, (*iii*) Deccan Lavas Region, (*iv*) Lower Indus Valley.

Give reasons for your answer.

22. "The most important fishing grounds are those of the shallow seas fringing the cool temperate marginal lands."

Discuss and illustrate this statement.

23. Describe the process by which tea, coffee and cocoa are respectively prepared for use. In what countries are they consumed as beverages? Give reasons. How is it that London is the centre of the tea trade?

24. Give a short description of the surface and drainage of India, showing the districts specially suitable for particular industries. What raw materials do British manufacturers obtain from India?

25. Name the more important raw materials in each of the following manufactures :—

(*i*) Paper, (*ii*) Linen, (*iii*) Porcelain, (*iv*) Carpets, (*v*) Chrome leather.

Describe each of these raw materials and say where it is obtained in India and where are the above-mentioned manufactures carried out?

26. Discuss the advantages or disadvantages of increasing the wheat supply of Great Britain. Discuss the question from the point of view of (*a*) the farmer, (*b*) the agricultural labourer, (*c*) the Government.

27. Examine the influence of climate on the trade of (*a*) a Mediterranean region, (*b*) a region between the tropics, (*c*) a region in the north temperate zone.

28. Describe the wind systems of the North Atlantic Ocean and indicate the effects of the winds on the climatic conditions of the lands bordering the ocean.

29. "The wettest and the driest parts of Africa lie comparatively close together." Discuss this statement and suggest the causes of these extremes.

30. What phenomena suggest that there is a casual connection between the moon and the tides? When is the effect of the sun's action on the tides apparent? How are the spring tides and neap-tides produced?

31. What is a delta? Why should some rivers have deltas and others not? Give examples to illustrate your answer. Are deltas of any use, and if so, how and where?

32. What are the conditions which make it possible to grow wheat with profit in India? Compare these conditions with those in South Australia and Canada. In which areas of these countries is the wheat grown?